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Educational Research for Classroom Teachers

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Barnes: EDUCATIONAL RESEARCH FOR CLASSROOM TEACHERS

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To BRANDEE AND BECCA

That their education may be better than mine.

Foreword

EDUCATIONAL Research for Classroom Teachers is exactly what the title implies. In a simple and readable style, Dr. Barnes introduces the novice to a kind of teaching which is research oriented—a condition under which teaching may become creative, problem centered, and much more rewarding to both teacher and pupil alike.

The author is not willing to settle for a classroom teacher who is simply a consumer of research. His major thesis is that educational research directed toward the intimate and everyday problems of the classroom is a corollary of good teaching. It would seem defensible logic to go a step further and propose that good teaching is predicated on active teacher involvement in the study of classroom problems.

If one were to classify the research point of view of *Educational Research for Classroom Teachers,* one would need to call it action research oriented. The purpose of the book is to introduce teachers to the simple methods of science through which they may solve their practical problems. To the present writer, any contribution to this need is tremendously important. The tools and the inspiration for such educational research represent an omission from the professional programs of preparation for far too many of America's classroom teachers today.

Under the conditions of such omission, the teacher, even at best, views himself only as a consumer of research produced by some mysterious "specialist." Little implementation of research findings ever reaches the classroom. There is no involvement, little understanding, and the practical application of research findings is difficult to transfer from the conditions of the experiment to the everyday activity of the classroom.

One unique contribution of *Educational Research for Classroom Teachers* is its introduction to this field of the case study approach. The cases selected represent problems familiar to all classroom teachers; they are contrived not as perfections to be copied but as a means of motivating the reader toward a more critical view of research. Because the problems are familiar, the reader can project himself into the experience. The story of research becomes personal, stimulating, and much more real than the usual textbook in educational research seems to accomplish.

But this is a short book. One would not expect to find within its pages all the answers. Nor is that its purpose. The book is not addressed to the doctoral candidate about to undertake a dissertation "in partial fulfillment of the requirements for, etc." Nor is it intended as basic reading for the few who will become specialists in educational research. Little space is devoted to research design and analysis and statistical treatment. Rather, the book is introductory in nature and scope, satisfying a teacher in-service need and also challenging the graduate student who takes "a course" in research methods. It is addressed to a million teachers who are encouraged to view educational research, not as a foreboding and formal activity for which they have neither the time nor the capacity, but as a natural and rewarding concomitant to successful classroom teaching. This, I believe, it does extremely well.

MAYNARD BEMIS
Executive Secretary
Phi Delta Kappa

Preface

THIS book is written for teachers and administrators—the men and women who lead learners, directly and indirectly. Most books on research methods are fashioned for students who desire to take an Introductory Research course and then continue to study advanced research methods and techniques. Why a departure from this trend?

Several basic beliefs characterize the writing of this text. *First,* a very large percent of the persons who pursue advanced degrees in education aim to be teachers, administrators, or special personnel in the public schools. Few are embryonic career researchers. *Second,* the teacher has few opportunities to build a philosophy of educational research which is consistent with his opportunities to do research. The theory which he hears or reads is often remote from his job. *Third,* the educational practitioner in the classroom and office has a vital research role and an obligation to fulfill it. His role is different from that of a full-time researcher, but it is none-the-less significant. *Fourth,* the teacher can make excellent use of research techniques as he teaches. Many individuals, groups, and classroom problems can be effectively studied by the teacher when research becomes a corollary of teaching. *Fifth,* the teacher can readily see the values and applications of research or problem solving when research methods and techniques are presented in the "case" context of the school. *Sixth,* the lag between research findings and educational practice, about which we glibly talk, will be decreased when practical research in the local school is conducted by all school personnel—when solutions are systematically sought in the natural setting of the problems. *Last,* research in education has suffered dehydration by being characterized as a formal and foreboding activity, remote from the classroom. Educational research, at its best, is problem solving for the improvement of the educational program. These are the seven basic assumptions that inform this book.

Now to the purposes. This book was written with the following purposes or objectives in mind: *First,* to provide the reader with a general background in educational research methods and techniques which have broad use in solving educational problems; *second,* to demonstrate that research and problem solving opportunities are abundant in the teacher's life; *third,* to encourage teachers and administrators at all levels to identify and describe educational problems which place a ceiling of limitations on teaching and learning; *fourth,* to show how various research methods and techniques can be applied to study specific school problems; *fifth,* to stimulate school personnel at the local level toward a continuous use of research methods; *sixth,* to point up three avenues of research which teachers need to understand and use—(a) the study of individuals, (b) the study of classroom groups or sub-groups, and (c) the study of teaching and learning problems; *last,* to give confidence and direction to the teacher in his desire to conduct research by discussing the types of research which most teachers can effectively perform and by honestly identifying some of the limitations and pitfalls teachers face in conducting research on the job.

Educational Research for Classroom Teachers is organized into five major parts. Part I, The Nature of Educational Research, deals largely with a historical view of the field and with the nature of research today. It describes methods and types of research valuable to teachers and other school personnel. Bibliographies are provided to guide the reader's special interests and needs for more intensive knowledge of specialized techniques and research tools. Research and teaching are pictured as co-activities. Some of the values teachers derive from involvement in educational research are discussed. Part II, Case Studies, introduces three areas in which research can be employed—the study of individuals, the study of classroom groups or sub-groups, and the study of teaching and learning problems. Real life cases are detailed in each of these three areas in order to illustrate the variety of research problems which awaits the teacher and administrator. The five cases contained in this book are not perfect studies or models. They are cited chiefly to demonstrate certain methods and techniques of research which can be employed in the study of educational problems. They should be critically examined by the reader.

Such important topics as format, record keeping, delimiting problems, outlining, the accumulation of data, and the use of graphic and statistical interpretations are discussed as these topics naturally arise in each case problem. Such an organization is designed for educational utility and to enable the reader to apply research methods and techniques to actual problems in the school.

Acknowledgment is gratefully given to my colleagues who have patiently and constructively nourished my enthusiasm for

writing this book. I am likewise indebted to many graduate students over the years who have made teaching research methods a thrill, not a chore. Special acknowledgment must go to Guy Dean McGrath, Dean of the College of Education, Arizona State University, for valuable counsel, to Gordon G. Caswell, Administrative Assistant to the Bureau of Educational Research, who assisted in numerous details, and to Shirley B. Barnes, my wife, who has shared my joys and lightened my woes while preparing the manuscript.

JOHN B. BARNES

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Part I

THE NATURE OF EDUCATIONAL RESEARCH

YESTERDAY AND TODAY

1.

TODAY'S teacher and administrator in the American school is more informed about his job, more acutely aware of his broad educational responsibility, and better prepared to pursue his task than ever before. This is true in spite of the fact that figuratively the classroom is many times larger than 20 years ago; it contains curriculums and varied experiences which are needed to equip a wide range of students for modern living, for economic pursuits, and for study in higher education. The scope of the classroom is tremendous. The profession of education likewise has grown in stature and significance. As a part of this growth, the role of research and problem solving in education has assumed great importance in the life of educational practitioners. Research and educational practice have been drawn closer together.

The Beginning of American Educational Research

An overview of education in the early 1900's brings into sharp focus the differences between public education of that era and of the present age.

The teacher in the early 1900's taught a wide range of courses. In many schools he taught whatever needed to be taught. His main concern was to be sure that the subject-matter was thoroughly memorized. It was not unlike the chanting repetition of Colonial schools. He taught out of his "hat of experiences." His formal education was indeed limited when compared to more recent programs designed for teacher preparation.

His role was largely that of the disciplinarian. His word was seldom challenged. His authority was deeply ingrained. Drill was his chief technique of teaching. The teacher of this era was loosely attached to the school or the community. The teacher lived a secluded kind of life. He had respect as a teacher but not as a permanent member of the community. He had few local, regional, or national professional ties. The National Education Association was not granted its charter until 1907, at its convention in Los Angeles, California, although its parent organization dated back to 1857.

Education was compulsory to the eighth grade. Courses were few. Auxiliary services, such as school bus transportation, noon lunch programs, teacher and student libraries, testing and guidance programs, health services, did not exist except in large cities. Even there, many of them were regarded as "experimental."

School boards existed for two reasons—to employ and to release teachers. They played no role, as they do today, in the development of broad school policies. Every group of citizens who wanted a school formed a common school district system. Some district reorganization was beginning to take place, however, and very small districts were being united. The nation was still largely agricultural and the schools were basically organized to fit this way of life.

What about the educational diet? Cook summarized the nature of the educative process in the early 1900's when he wrote: [1]

> By 1900 the educational reforms sponsored by Horace Mann, Henry Barnard, and their co-workers during the 1830's and 40's had been generally accepted. Compulsory education and the eight-year elementary school, patterned after the Prussian Volkschule, were established institutions. The special training of teachers was provided for. Normal schools, open to eighth-grade graduates, existed in most states. Graded textbooks, graded courses of study, and rigid curriculums, decreed by city, county, and state superintendents, set the pace for the educational assembly line.
>
> The teachers, with a few technics of mass instruction and discipline learned in a short course at normal, were trained but essentially uneducated. The schooling process consisted of following a rigid schedule of assignments and recitations from textbooks. The goal was to cover the prescribed number of pages in a designated number of days. In the classroom potential mule skinners, day laborers, and janitors sat beside embryo research physicists, surgeons, and business executives. They looked at the same textbooks, heard the same recitations, pursued the same educational goals, and were marked on the same standards.
>
> Individual differences were sensed, but not understood. They were the teacher's problem. He must provide for them and bring all pupils up to standard. The course of study was the prescribed academic requirement to be administered to all pupils. No pupil should be promoted to the next grade until he was ready for the work of that grade. The passing mark must be rigidly adhered to. Standards must be maintained.
>
> Teaching efficiency was measured by the proportion of pupils the teacher could get above the passing mark. Failure in one

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[1] American Educational Research Association, 1948 Official Report, *Improving Educational Research,* Walter W. Cook, "Accomplishments and the Promise of Educational Research," pp. 79-80.

> subject meant failure in all. Grade level was assumed to indicate a definite level of achievement. A docile personality and a good memory meant success in the rigid, tense, pin-dropping atmosphere of the classroom. Classes were large. The commands, "attention," "position," "sit," "stand," "wait for the order," "march," controlled the packed pupils as they squirmed in their regimented seats or wormed their way thru the narrow aisles.
>
> Reading was taught as the oral articulation of words based on a knowledge of the various sounds of the letters of the alphabet. Voice inflection was stressed. Reading materials consisted of fanciful stories and the classics. In spelling, hours were spent learning such words as mordacity, perspicacity, triplicity, verticity, oleaginous, mucilaginous, vertiginous, and so on. In arithmetic, apothecaries weights, troy weights, longitude and time, surveyors' measures, and square and cube root, baffled both teachers and pupils. Physiology consisted of learning the names of the bones and muscles of the body and the parts of the digestive, circulatory, and respiratory systems. Geography and history required the memorizing of equally meaningless names and chronologies.

Needless to say, some of these heritages of our past have lived beyond their time.

Educational Research in Retrospect

The Pioneer Period: 1900 to 1920

Since about 1900, American educators have been trying to develop "a science of education" by turning to modern scientific methods for their standards of authority and for their methods of work. The history of educational research is really a history of the use of scientific principles and practices in the study of educational problems.

In the pioneer period there were many outstanding educational leaders. Intensive study of any one of these leaders and their lifework is both rewarding and exciting. The reader walks vicariously with men whose vision, personal bravery, and unorthodoxy thrill and challenge today's educators. It is both difficult and dangerous to pin-point a starting time and place, a person or contribution which represents the birth of the scientific approach to educational problems. However, a number of authorities concur in suggesting that the year 1900 was the opening of this new era for education.[2] Monroe has stated that "Since the beginning of the twentieth century the science of education has emphasized a factual approach to problems"; [3] but certainly there were traces of educational research in the United States prior to 1900.[4]

The pioneer period in educational research was marked by a stress on measurement and testing. Darwin, Huxley, Spencer, Compte, Galton—such men are in a very real sense the forefathers of modern educational research.

Francis Galton, 1822-1911, made first application of the statistical methods to educational problems. Galton's studies, specifically *Hereditary Genius* in 1869, had a tremendous bearing upon educational philosophy, although Galton did not claim to be an "educator." In *Natural Inheritance* he laid down with precision many statistical principles and new terms. It was on Galton's foundation that Karl Pearson, Cattell, and Thorndike later developed educational statistics.

In 1890, J. McKeen Cattell, then at Pennsylvania University, wrote *Mental Tests and Measurements,* the classic which added further new terms to the field. Possibly Rice can be credited with the role of prompter to action in the area of objective measurement and evaluation in educational research.

[2] Carter V. Good, "Educational Research After Fifty Years," *Educational Digest,* April, 1956, pp. 22-25.

[3] Walter S. Monroe, *Encyclopedia of Educational Research,* p. 1,145.

[4] B. R. Buckingham, "Thirty Years of Educational Research," *Baltimore Bulletin of Education,* 30:3-9, November, 1952.

At 31 years of age, a successful physician with seven years of experience, he turned to the study of philosophy, psychology, and education. After two years of training in Europe he returned to the United States. After visiting 36 American cities studying their schools, in 1897 he began to publish a series of articles in *Forum,* a magazine owned by his brother. The impact he had upon educational thought in America can scarcely be overstated. In 1897 at the annual meeting of the Department of Superintendents, now called the American Association of School Administrators, Rice reported on his spelling investigation which had included 33,000 children. His report aroused the severe disapproval of those in attendance. It seems that hardly a single educator was willing to accept his conception of the difficulty which American students of that day were having in spelling achievement. Ayres has described the reaction to Rice's speech in the following words: [5]

> The educators who discussed his findings and those who reviewed them in the educational press united in denouncing as foolish, reprehensible, and from every point of view indefensible, the effort to discover anything about the value of the teaching of spelling by finding out whether or not the children could spell.

Although Rice's work did not bear immediate fruit, it was a source of inspiration to educational leaders such as Thorndike, Strayer, Ayres, and others who went on to contribute to the research movement. Thorndike's early study, *Elimination of Pupils from School* (1907), was followed by Leonard P. Ayres' *Child Accounting in the Public Schools* (1909) and *Laggards in Our Schools* (1913). George D. Strayer's *Age and Grade*

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[5] *Ten Years of Educational Research—1918 to 1928.* Urbana, Illinois: University of Illinois Press, 1928, p. 30.

Census appeared in 1911. These statistical publications, together with Rice's spelling investigations and other studies of teaching efficiency, mark the American beginnings of the scientific application of problem solving to education.[6]

Soon after 1910, the construction of educational tests became the most conspicuous activity in educational research. With evangelistic fervor this field was paced by Cattell (who had caught the fever of trying to measure educational achievement from Galton and Pearson in England), followed by Edward L. Thorndike, who for some years had been working with Cattell, Boas, and others in the field of statistics and psychology and who published the first book dealing directly with mental measurements, *An Introduction to the Theory of Mental and Social Measurement* (1907).[7] Binet and Simon in France developed the first form of their composite intelligence test in 1905. In 1908 Stone in the United States published his arithmetic scale, which was the first such standardized test. Thorndike's *Scale for Handwriting of Children,* 1910 to 1920, was the first scientifically calibrated instrument to measure an educational product. From 1908 to 1918, there was a veritable rash of intelligence tests. They came of age, so to speak, in World War I when they were used by the United States Army. The year 1918 saw the appearance of the first group intelligence scale designed for school use. It was produced by Otis.

That educational research was approaching the end of the pioneering stage was evidenced by the appearance of the listing "educational research" in the *Readers' Guide to Periodical Literature* in 1917.

In addition to the stress in the pioneer period of educational research on measurement and testing, another major theme was evident. In the 1900's the school survey became almost a movement. Its humble beginnings in 1911 were charted by a rather subjective personal-opinion scoresheet which compared the ideal school to the school being examined or surveyed, but in 1916 this research method and its application became far more objective, largely due to the work of Strayer.

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[6] H. G. Good, *A History of Western Education.* New York: The Macmillan Company, 1949, p. 480.

[7] See *Ten Years of Educational Research, op. cit.,* p. 89.

It was in this era that Cubberley began his studies of the experience of several states in developing free public schools. Hanus worked with large city schools and did comprehensive school surveys. By 1915 or 1920, the work of Strayer and others had implanted scientific method in the school survey movement; it took root and grew.

As achievement and intelligence testing became more scientific, the school survey began to employ it to describe pupils, and pupil testing thus became a major emphasis in the early survey.[8]

There followed a great debate in which opponents of objective measurement inquired into the "propriety" of obtaining such data and the possibility of accuracy involved in the process. Although such arguments may still be heard, Thorndike, in an address at the first annual conference of educational measurement at Indiana University in 1914, put the axe to the debate when he declared: "If a thing exists, it exists in some amount; and if it exists in some amount, it can be measured." [9]

At about the same time, large midwestern and eastern universities began to create departments and bureaus of educational research. In 1913 the University of Oklahoma opened its bureau. Several other schools rapidly took up the idea of a central office to initiate and coordinate research in education.

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[8] See Walter C. Eells, "Use of Standardized Tests in 75 Published School Surveys," *School Life,* 14:168-69, May, 1929; and Hollis L. Caswell, *City School Surveys.* Contributions to Education No. 358, New York: Teachers College, Columbia University, 1929.

[9] Edward L. Thorndike, An Address, First Annual Conference on Educational Measurement, Indiana University, Spring, 1914, Bulletin of Extension Division, Volume 12, Indiana University, 1914.

The Prolific Period: 1920-1945

Now the "textbook" era arrived. During the 1920's and 30's, many key books were written.[10] Research methods and projects in almost every conceivable subject area of education proliferated in the periodic literature. Educational research became an important field of study. Courses were offered in colleges and universities, and graduate programs began to require a course in the field. In 1916, the *Educational Research Bulletin* came off the press, and in 1920, the *Journal of Educational Research* arrived on the scene. In that year, too, the American Education Research Association was formed. In 1931, the *Review of Educational Research* came into existence; the following year, the Cooperative Test Service began operation. *Psychometrika,* a magazine devoted to factor analysis, began publication in 1936, and in 1940 came the first edition of the *Encyclopedia of Educational Research.*

The Self-Critical Period: 1945-

Since about 1945, there has been a concerted effort to re-evaluate educational research in the light of improvements that research has brought about in the educational program. This re-appraisal has greatly strengthened research in education. As early as 1938 a critical review of the field was conducted by the National Society for the Study of Education. In 1942, McConnell, Scates, and Freeman wrote *The Conceptual Structure of Educational Research,* which attempted to analyze the field as it existed in that year.

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[10] B. R. Buckingham, *Research for Teachers.* New York: Silver, Burdette, and Company, 1926; Harold H. Abelson, *The Art of Educational Research.* Yonkers, New York: World Book Company, 1933; Carter V. Good, A. S. Barr, and D. E. Scates, *Methodology of Educational Research.* New York: Appleton-Century-Crofts, Inc., 1936.

Research methodologies in education have undergone extensive refinement and reclassification. Terminologies and meanings have been changed, and new or remodeled methods are being demanded. For example, the critical incident (C. I.) technique in the study of educational problems has become significant through the work of Flanagan.[11] The concept of action research under the leadership of Corey and others has been found very useful in bringing educational research nearer educational practitioners. Longitudinal studies have claimed renewed importance as opposed to narrow, intensive vertical studies of minute problems. The demand for local school research and practical field studies of educational problems in their natural environment can be noted in the literature. Bureaus of Research in universities, in State Departments of Education, and in school districts are steadily increasing the amount of research conducted in specific locales away from their central offices. Broad involvement in the planning and carrying out of certain educational research is now regarded as most profitable. Field educational consultants are used extensively to assist local school districts as they work on educational problems. A profession of educational consultantship has developed. Last, but probably most significant, the classroom teacher, administrator, and other special school personnel increasingly believe in and practice the idea that research is a local responsibility. Where limited staff hampers the school's research activity, school budgets are planned to provide funds for the employment of professional research consultants. The role of the consultant is at least two fold: (1) to assist in a specialized way, and (2) to help develop research abilities among school personnel.

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[11] John C. Flanagan, "The Critical Incident Technique," *Psychological Bulletin,* 51:328, July, 1954; *The Critical Incident Technique in the Study of Individuals.* Washington, D. C.: American Council on Education, 1952; and "Critical Requirements: A New Approach to Employee Evaluation," *Personnel Psychology,* 2:421-422, Winter, 1949.

Modern Educational Research

2.

ALTHOUGH some students are disturbed by the difficulty of arriving at a definition which is not *the* definition, definitions are valuable if we assume that they are an aid to understanding a concept and not a means of forming dogmatic categories.

Definitions

The present-day nature of educational research is much more difficult to describe than the casual teacher-observer would suspect. In spite of the fact that nearly every leader in education has defined the field, some educational practitioners in the public schools still conceive of research in a narrow, thesis writing kind of framework. Stein has said that there are but two kinds of research—static and dynamic. Even the venerable W. W. Charters used the terms "pure research" and "practical research," which today smacks of name-calling. W. H. Kilpatrick has cited three basic methods of research—scientific, historical and philosophical; however, Whitney declared that this was not a logical categorization.

There are many definitions of research, some of which would seem to define it out of existence. Stoddard has declared: "Research means simply Men Thinking,"[12] while Travers says that "The term research has come to be applied to such a wide range of activities within the field of education that it has ceased to have single identifiable meaning."[13] Yet, if a thing cannot be catalogued and defined at all, it could be that it has no meaning at all. Persons who look for a handle to help them grasp an idea or a concept are not to be scorned: they constitute a mighty bulwark against the advancing general semanticists. A. S. Barr, in an address entitled "What is Research?," said:[14]

> I would like to define research broadly as any systematic search for understanding, limited to a particular subject that has, for purposes of investigation, been cast in problematic form and formally defined. It may involve library research as a sole source of information or as orientation for a new and direct appeal to experience: it may involve evaluation as fact-finding operations: and it may involve the collection and analysis of data according to the conventions of science. Education being what it is should not be limited to a single concept of research.

According to the *Phi Delta Kappan,* "Research is a search for truth and new knowledge."[15] Hillway sought to define research, in fact to write an entire book about research, by largely avoiding the use of technical terms. His definition will appeal to many: "It will be enough here . . . to describe research briefly as a method of study by which, through careful and exhaustive investigation of all ascertainable evidence bearing upon a definable problem, we reach a solution to that problem." [16] Rummell calls research "an endeavor to discover, develop and verify knowledge," [17] while Watson has reminded educators that: "In education we would do well to stop mimicking the physical sciences. Educational research is ultimately concerned with people. It is best shared as lay and professional educators are involved." [18]

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[12] George Stoddard, "Educational Research Lacks Impact: It Avoids Controversies and Human Values," *The Nation's Schools,* 49:44-46, May, 1952.

[13] Robert M. W. Travers, *An Introduction to Educational Research.* New York: The Macmillan Company, 1958, p. 4.

[14] A. S. Barr, *What is Research?* An address delivered January 1, 1957, at Southern Illinois University, Carbondale, Illinois.

[15] Phi Delta Kappan, Commission on Research, "Educational Research: A New View," *Phi Delta Kappan,* 35:3, October, 1953.

Three Expressions of Research

Educational research, as an activity for teachers and administrators, is expressed in three activities: (1) fact-finding for educational enlightenment, (2) problem solving for the improvement of the educational program, and (3) a process of professional development and personal growth.

First, let us look at research as fact-finding. Assume that the school district wants to predict future enrollment in the freshman class of its high school. The board of education authorizes a study to determine (1) birth rates in the district, (2) in-and-out migration, (3) the existing number of youngsters enrolled in the elementary grades, and (4) the percent of dropouts over a period of years from elementary graduation to enrollment in high school. Such fact-finding may seem elementary, but it is basic to more complex analysis of the school population, and, of course, to the prediction of future enrollments.

There are some who question whether fact-finding is research.[19] Certainly the haphazard accumulation of facts, numbers, or opinions is not research. However, when a systematic collection of facts is conducted, one is engaged, if only at an elementary level, in educational research. Many fact-finding activities which school districts perform belong, therefore, to the family of research activities: taking the school census, obtaining test scores, soliciting opinions about school issues, learning what other districts and states are doing about persistent educational problems, maintaining pupil records, and accumulating data about the physical and financial operation of the school—all these are research activities and are increasingly necessary as education becomes more complex. There is a great demand for school and community committees to accumulate facts which, in the day-to-day job of teaching, may escape the memory, and to devise systems calculated to solve specific fact-finding problems. Fact-finding is the underpinning of research.

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[16] Tyrus Hillway, *Introduction to Research*. Boston: Houghton Mifflin Company, 1956, p. 5.

[17] J. F. Rummel, *An Introduction to Research Procedures in Education*. New York: Harper and Brothers, 1958, p. 2.

[18] Fletcher Watson, "Research in the Physical Sciences," *Phi Delta Kappan*, October, 1953, p. 5.

Secondly, research is expressed in problem solving for the improvement of the school program. Stephen Corey has declared that "In the last analysis, the worth of all educational research is judged by its contributions to the improvement of educational practice." [20] The fact that the worth of educational research is often measured on the scale of utility is again indicated by Harap's survey [21] of the educational adaptations made as a result of eighteen comprehensive school surveys in several states.

In 1948, the Official Report of the American Educational

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[19] See D. C. Ryans, "Are Educational Offices Conducting Research?," *Journal of Educational Research,* 51:173-183, November, 1957.

[20] "A Perspective on Educational Research," *Phi Delta Kappan,* 35:21, October, 1953.

[21] Henry Harap, "Do School Surveys Produce Results?," *The Nation's Schools,* 49:35-38, March, 1952.

Research Association stated: "We get value out of research in the field of education just to the degree we actually apply its findings."[22] This viewpoint of researchers affiliated with the American Educational Research Association is widely echoed by teachers and administrators in the field.

The foremost function of educational research today is problem solving to improve the level of teaching and learning in our schools. In essence, educational research must be practical; results must be forthcoming. In urging educators to be practical in their research, Herbert S. Conrad enumerates the following points:[23]

1. The problems studied in practical educational research are not primarily theoretical or academic; they have their origin in actual educational operations—in the classroom, in practical administration, in problems of financing the schools, in school construction, in public relations, etc.
2. Practical educational research looks toward application of its findings.
3. Practical research gives emphasis to the question of how to do it.
4. It does not ignore any highly significant element of the problem; it aims to be comprehensive and complete.
5. Practical research disseminates its findings.
6. It has an operational nature which is more humble and often equally valuable to that type of research which widens our frontiers of knowledge.
7. Practical educational research recognizes that education takes place in a social matrix.
8. Finally, practical research must proceed with due regard to existing limitations.

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[22] American Educational Research Association, *Improving Educational Research*. Washington, D. C.: AERA, 1948 Official Yearbook, T. C. Holy, "Getting the Value Out of Research Thru Applications," p. 37.

[23] H. S. Conrad, "Research—Education's Gibraltar," *School Life*, 34:97-98 and 109, April, 1952.

The National Education Association Yearbook of 1957 listed seven criteria of modern educational research. Each is clearly oriented toward problem solving, at the local level, for school improvement: [24]

1. A feeling should exist among potential researchers that it is all right to have problems.
2. Research should be designed so that it will satisfy people's needs.
3. Research should start gently, perhaps on a modified voluntary plan.
4. School officials should help people find security in groups and help them to work together successfully as group members.
5. They should provide enough "safety valves" so that steam can be "blown off" when things do not go well.
6. Those in leadership should allow for the lone researcher as well as the researcher who wishes to work with others.
7. They should involve in research projects those teachers, parents, and others who are high in the power structure of school and community.

Problems are always in the teacher's front yard. The alert educator today cannot escape running headlong into educational problems which need solution. The enumeration of some major divisions of the educational program may illustrate the plethora of problems on hand:

1. Study of the school's community
2. School district reorganization
3. Development of better curriculums
4. Institution of new curriculums to meet the new age
5. Techniques of teaching in all areas

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[24] National Education Association, Yearbook of American Association of Supervision and Curriculum Development, *Research for Curriculum Improvement,* 1957.

6. Comprehensive survey of the school and its program
7. Development of testing programs
8. Role of guidance in the local school
9. Interpretation of tests in the school and classroom
10. Individual case studies of specific pupils
11. Evaluation of student achievement
12. Pupil accounting
13. Pupil placement and follow-up
14. Financial operation of the school
15. Auxiliary school services: library, cafeteria, transportation, and others
16. Teacher salaries and promotions
17. Rewarding excellency in teaching
18. Use of leisure time
19. Adult education needs in the community
20. Cost analyses of school attendance
21. Need for various remedial programs

Such a list is only suggestive. Also, it is composed of very broad topics, from each of which many sub-topics for research study could be drawn.

The third expression of educational research lies in the teacher's pursuit of solutions to educational problems as he teaches. On-the-job growth of the graduate in teacher education is absolutely essential. His inservice training must necessarily be largely a self-initiated and self-sustained activity. Hence, every teacher should carve out a research study large enough to attract him, yet one that can be pursued with personal satisfaction and with some assurance of professional achievement. On-the-job research requires the adoption of a research attitude and philosophy. It is easy enough to memorize research rules and processes, to theorize about them in formal classes. The real test comes with the decision that research is a functional and nutritive activity in which each teacher should engage himself while on the job. The essential aim of educational research is the improvement of teaching and hence the improvement of society's most valuable resource—the brainpower of its citizens. In a day crammed full of concern for our personal and social future, the purveyors of knowledge, that is, teachers, must evidence skill and leadership in the scientific solution of problems in education.[25]

Yet, teachers, like the rest of the population, are too often ignorant about many things. Furthermore, a great deal of what we "know" is untrue, ungrounded in scientific, verifiable fact. It is the task of research to correct this vision by synthesizing our funds of knowledge, by testing and retesting our hypotheses and educated guesses.

The person in teaching, or inclined to enter teaching, must never forget that education is basically an intellectual pursuit. If study, mental activity, and critical thinking are foreign to one's nature, he should adjust his occupational sights. Try as he may, a teacher cannot escape the academic and the intellectual pursuits. One would not choose a military career if he were afraid of guns; one would not logically become a jockey if he were allergic to horses; and one should not enter teaching if he dislikes rigorous study, if he shrinks from associations with ideas. A constant quest for knowledge is the golden thread of a teacher's professional and personal development. Other excellent qualities—warmth, genuineness, sociability, optimism, open-mindedness—cannot substitute for the intellectual attribute. They may augment it but they can never replace it. Amiable mental midgets are not needed in our classrooms. We need men and women who love knowledge and seek to develop that love in others. Educational research is one very important avenue toward such development.

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[25] See "The Human Resources of the United States," preface, *Scientific American,* 185:27, September, 1951; and Harry A. Grace, "Leadership: The Educator's Challenge," *Educational Administration and Supervision,* November, 1955, pp. 416-430.

Types of Educational Research

Educational research can be categorized or classified in many ways. For example, there are the following ten rather basic types: (1) Fields in which the research is conducted (sociological research, psychological research, chemistry research, etc.); (2) The purpose of the research, that is, descriptive, prognostic, predictive, diagnostic, etc.; (3) The place research is conducted—in the field, laboratory, classroom, etc.; (4) The application the research has—applied, pure, service, and action research; (5) Types of logic employed; (6) Types of data-gathering devices used—questionnaire, opinionnaire, experimentation, etc.; (7) The character of the data collected —qualitative or quantitative; (8) Symbols used—verbal, nonverbal; (9) Control factors or no control factors; and (10) Method of research which is most prominent in the study—descriptive, experimental, or historical.

For purposes of discussing further the nature and purpose of modern educational research let us consider the fifth type—the application the research has.

Pure research, sometimes referred to as basic or fundamental research, is characterized by a desire to "know," to expand the frontiers of knowledge. When most of the early biological research in human anatomy was conducted, it was prompted solely by this noble desire to know. Free men seek truth; pure research is the unfettered, scientific search for knowledge, solely for knowledge's sake. "Pure research is not hampered by considerations of the social use to which discoveries may be put. It is interested first of all in the continuity and integrity of the thought process in science and philosophy."[26]

Pattishell differentiated between basic and applied research thus:[27]

> While basic research seeks to make a fundamental contribution to the knowledge of education, regardless of whether this new knowledge may have any immediate or practical application at the time, applied research attempts to examine a present practice or problem and arrive at a best solution for the time being.

Terman's early studies of genius represented pure research. Many of the early studies of learning theories were pure research. Although such research is concerned with knowledge *per se,* it often leads to further research of a utilitarian nature.

Applied research has the direct purpose of improving present practice. Most modern research in the area of testing and measurement is applied research. While pure research is generally the work of specialists and concept-builders, applied research is more often conducted by educational problem-solvers nearer educational practice. In many ways pure and applied research have a great deal in common. Reflective thinking, the scientific method, the problem-solving aim—each finds vent in both types of research. It is in objectives and applications that their essential differences are found.

Service research is that conducted by the professional researcher at the request of another person, group, or school that is not able, for various reasons, to do it for itself. In educational research this usually means that research bureaus are requested by schools or educational groups to conduct studies of single educational problems. In some such studies, there is little or no participation by the requesting agent. For example, a bureau of educational research may be requested to study the financial accounting practices of a school district. Or, a bureau may be employed to study the need for a new salary system for academic personnel, or to devise a plan for improving school-community relations, or to seek better ways of reporting to parents about pupil progress. Service research is especially useful in dealing with educational problems which have overly aroused the emotions of persons directly involved. It is also very useful, of course, when resource persons are not available at the local school level.

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[26] F. L. Whitney, *The Elements of Research.* New York: Prentice Hall, Inc., 1950, p. 25.

[27] Evan G. Pattishell, "Educational Research at the University of Virginia," *The University of Virginia News Letter,* 34:1, December, 1957.

Action research in many ways is education's own; it is not borrowed from other fields.[28]

> Action research in education is research undertaken by practitioners in order that they might improve their practices. The people who actually teach children, supervise teachers, administer school systems, attempt to solve their practical problems by using the methods of science.

Action research calls for broad involvement, a flexible study plan, time for participants to grow in the process of studying the problem, and most important of all, assurance that action be taken toward a solution to the problem under study. As Foshay puts it: "Somewhere, Henry Adams said that inert fact is the curse of mankind. Inert facts are uninterpreted data. The researcher who merely presents tables of fact has shirked his responsibility and added to man's burden." [29] Action research is in many ways an evangelistic crusade against inert fact and against formal research findings having little or no interpretation potential or applicability to the improvement of the educative process.

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[28] Corey, *op. cit.,* p. 141.

[29] A. W. Foshay, "Some Slogans About Research," *Educational Research Bulletin,* 34:16, January 12, 1955.

Methods of Educational Research

The methods discussed briefly here will be expanded upon when they are brought to bear on the case studies of educational problems found throughout the remainder of this text. The essence of the methodology can best be seen as it is related to typical educational problems; however, some preliminary understanding of the nature of the three key methods is first necessary.

Basically, there are three methods of educational research, but seldom does a single research study employ only one methodology. Most research in education, according to its need, makes use of all three: historical, descriptive and experimental.

The Historical Method

Historical-method research is an interpretative synthesis of past events and records which makes use of first-hand and second-hand resources. It is viewing today through the lens of retrospect.

Historical methods in educational research deal with records and remains which have relation to current problems in education. It is developmental, evolutionary, in nature. Its intent is to capture the past in order to interpret the present meaning of events. According to Macaulay:

> The perfect historian is he in whose work the character and spirit of an age is exhibited in miniature. He relates no fact, he attributes no expression to his characters which is not authenticated by sufficient testimony. But, by judicious selection, rejection, and arrangements, he gives to truth those attractions which have been usurped by fiction.

Studies of a historical nature in educational research comprise a large and broad collection. They include histories of the lives of leaders in educational thought and practice—both lay and professional—and histories of educational movements and trends. Many studies have been made of the history of individual school districts, state programs of instruction, and national education systems. The historical approach to educational issues—discipline, the three R's, local control, methods of instruction, foundations of financial support—has been much used in research.[30]

A form of the historical method is also employed in the development of case studies in supervision and administration.[31] By a study of critical incidents the student is able to identify types of behavior and draw inferences as to their causes. The use of such case histories encourages the student to "think" as though he were in the field. It is a prelude to actual internship in supervision and administration.

Some anthropologists declare that man is the only animal that has a society and culture which is additive. Learning is a stair-step or, in this modern world, an escalator only to this animal. New generations make use of the accumulation of facts and insights of past generations. Each individual man need not empirically test each premise he employs; he builds upon the past. His society at one stage discovered fire, at another invented matches, then alloys, and complex fuels. Man invented the sled, the wheel, the bicycle, the automobile, the biplane, and supersonic aircraft. Such technical advance is possible because man's past is not lost; it is captured in historical records and remains.

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[30] See National Education Association Research Bulletin, *Ten Criticisms of Public Education.* Volume 35, Number 4, December 1957, pp. 131-174.

[31] See Cyril G. Sargent, and E. L. Belisle, *Educational Administration: Cases and Concepts.* New York: Houghton Mifflin Company, 1955; and Daniel E. Griffiths, *Human Relations in School Administration.* New York: Appleton-Century-Crofts, Inc., 1956.

During the 1920's and 1930's, historical educational research received a great deal of attention. Most of the early books about the historical method were published by the university presses. F. M. Fling's *The Writing of History: An Introduction to Historical Method,* for example, was published in 1920 by Yale University Press. It was a history of the historical method. Harry E. Barnes, *A History of Historical Writing,* was published by the University of Oklahoma Press in 1937. In 1938 came Allan Nevins' *The Gateway to History,* which was widely read and in a general way gave impetus to the conducting of more research in education by the methods of the historian.

The historical method has likewise been employed in the study of many educational problems in which the dominant research method was not historical in nature. Reisner [32] has contributed to this use of the historical approach throughout educational research.

During the 1930's an abundance of formal research projects using the historical method led to some misuses. Some studies became merely replicas of other works. Many were "library exercises" with no direct, first-hand contact with the subject. The authority which primary data lends was lost by focusing upon second-hand and third-hand sources.

Abelson cited three broad sources to which the educational researcher might turn for reliable supportive materials.

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[32] Edward H. Reisner, "The More Effective Use of Historical Background in the Study of Education," *The Use of Background in the Interpretation of Educational Issues.* Yearbook Number XXV, National Society of College Teachers of Education, Chicago: University of Chicago Press, 1937.

1. Factual sources, such as university catalogues; records of meetings and events; official documents, news articles.
2. Educational tools or implements, such as, syllabi, reading lists, teacher's manuals, textbooks, workbooks.
3. Sources of a secondary nature, such as, reports of research studies, documented reports of individuals or groups, treatises about education.

The disrepute of historical research resulted from researchers depending almost exclusively upon the third group of broad sources.

In more recent times, however, the historical method in educational research has regained its good repute.[33] Today thinking people have a renewed respect for the past. The utilitarian role of history is to enable men to attack today's issues more soundly by fitting them into yesterday—their total setting. Sociologists realize that a problem growing out of communal living can be best solved by reviewing the "family-tree" of both the community and the problem. Although anthropologists were long criticized for their stress on man's past instead of his present and future, today all social scientists exhibit a great awareness of the close relationship of past to present and to future. They realize that tomorrow is already yesterday.

The problems of modern education in the United States can be more clearly understood by reviewing the historical foundations of public education, its early struggles, the major issues which serve to evoke the principles we cherish today. Any local school system embroiled in educational crisis can gain new and healthier perspective by studying or preparing histories of its beginnings in the community, the roles it has played, the functions it has fulfilled and neglected—assuming, of course, that its leaders are creatively self-critical.

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[33] See Leighton H. Johnson, "Education Needs Historical Studies," *Phi Delta Kappan,* XXXVI: 157-60, January, 1955.

The historical method places the particular research problem in a larger frame. As Voltaire said about his history of the culture of western Europe, "I wish to write a history not of wars but of society." Too often educational research reflects a fondness for vacua. The historical approach is a check against this tendency to look at a problem as though it had no context.

Barzun and Graff have made a plea for the understanding of history in its broader meaning.[34] Where do we see history in education today? The record of a school board meeting is actually a history of what took place. The annual report of the school superintendent is technically historical in nature. A magazine's pictorial report of segregation and integration struggles in North and South is a history of educational events in a particular time period. In this broader use of the term history, even the anecdotal record is a history of a child's academic performance and behavior. In essence, history is what happened yesterday at the ball park or the spelling bee or the arithmetic class. It is not simply a record of things that occurred decades or centuries ago.

There are three major processes in the use of the historical method in educational research: *first,* the data-gathering process (mechanical), *second,* the data-criticism process (logical), and *third,* the presentation of the data (philosophical). The researcher first gathers data, later analyzes the value of data, finally he turns data (facts and opinions) into ideas.

In data collecting, there are two kinds of sources to which the researcher may turn: *First,* there are the primary resources.

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[34] Jacques Barzun, and H. F. Graff, *The Modern Researcher.* New York: Harcourt, Brace and Sons, 1957, pp. 6-14.

These are original documents or remains, the first witnesses to the fact. If an educator is studying the historical development of public education in his state or school district or the growth of vocational education or any other curriculum, he must address himself early to primary sources—charters, constitutions, statutes, laws, official records and proceedings, school board minutes, personal correspondence of persons who lived during the time, photographs, diaries, textbooks and workbooks used, personal interviews with those who shaped the development of events, actual early schools or the remains of schools, sites, cornerstones, monuments, and so on.

Second, there are the secondary sources. These are sources first-removed from the actual occurrence under study. Such sources as the following might be investigated if one did research on the historical development of a state's educational system: books about the subject, periodicals, opinions gathered from persons not living during the time but who are particularly informed about the conditions of the time, newspaper accounts (other than direct observation reports, which are primary data), and so on.

The resources for both primary and secondary data are numerous. Some authorities have attempted a firm classification of these resources. Barr, Davis, and Johnson [35] present a three-part classification: (1) documents, such as a state constitution or a contract; (2) records, such as legislative acts, autobiographies, letters, and (3) remains, such as monuments, tools, utensils, buildings, weapons, and so on. Other authors refer to three different classifications: (1) Consciously recorded or transmitted information, such as chronicles, official records, letters, paintings; (2) relics or remains which were not consciously produced to describe or depict the era under study, such as human remains, language or symbolism, applied arts or artifacts and fine arts, philosophy, literature; and (3) memorials, such as inscriptions or monuments.

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[35] A. S. Barr, R. A. Davis, and O. Johnson Palmer, *Educational Research and Appraisal.* New York: J. B. Lippincott Company, 1953, p. 216.

The collection of data in historical research in education can be a fascinating and absorbing process. A chief concern should be to locate primary resources, to obtain data that are as close to the fact as possible. An exhaustive list of all conceivable avenues for data-collection should be drawn up so as to not miss a single valuable source.

The second major process of research which employs the historical method is criticism of the data. Historians have given researchers in education two levels of criticism to consider—external or lower criticism and internal or higher criticism. External criticism deals with the genuineness or authenticity of the document, relic, monument or any other source of data. Did the person who is supposed to be the creator actually do the creating? By its form and appearance is the document authentic? Are the time and place attributed to it reliable? Attention to handwriting, type of printing, make-up of books, bindings, types of ink, and use of language may at various times be essential to competent external criticism.

Internal criticism has to do with the accuracy and validity of the statements in a written statement. We switch from the genuineness of the document to the question of how truthful its comments are. Competence, truthfulness, and honesty are guidelines to internal criticism. Is the author honest and reliable? Has he the experience and training necessary for producing a reliable document? What are his motives? What are his professional alliances? Is he a careful, accurate reporter, or does his bias inhibit his use of primary data?

A report called *The Place of the Republican Party in U. S.*

Politics might be written by Richard Nixon or John Kennedy. Needless to say, internal criticism would be advantageous in arriving at a conclusion about the reliability of such a report. *The History of Atomic Research Conducted by the U. S. Government, 1946-58,* might be written by any one of several persons—a top level administrator of governmental reesarch, a researcher who participated in most of the research conducted during those years, a newspaper editor, a junior in college, a critic of governmental spending, or a Russian scientist. Internal criticism of such a document would be very important. It is sobering to remember that what every individual writes should be examined "internally."

The third process in historical writing is the presentation of data. This is a philosophical process involving synthesis and blending of data. Great care must be taken to report facts objectively and to label opinions. It is true that the researcher cannot entirely keep himself out of his product. Pure objectivity is virtually impossible in human life. Rousseau put it this way: "It is conceivable that the facts described in history should not give an exact picture . . . they are transformed in the brain of the historian, they are moulded by his interests and coloured by his prejudices." Man has limitations both in interpretation and reporting, complex, personal limitations through which he screens everything—visually, conceptually, audibly. These human limitations we accept; deliberate slanting we reject.

What are some of the common elements that characterize good historical writing and research?

First, it shows mastery of materials. Thackeray once said that Macaulay read twenty books to write a sentence and traveled one hundred miles to write a line of description. Evidence of real scholarship, exhaustive research, accuracy in the use of sources, balance and objectivity will be found in historical research. In historical research there is no substitute for the fact—without it the researcher cannot unravel his thread; he can only enlarge the knots.

Second, it is objective. The best historical research seeks solely to study and report the parade of events, their networks and interconnections. To justify events, actions, or causes is errant.

Third, collection of data and presentation of data are done from a working outline. Before extensive, purposive reading and research is begun a tentative outline and structure should be developed. As sources are tapped and materials analyzed, the outline will crystallize into final form.

Fourth, good historical research and writing implies progression. In older times progression implied a chronological nature; today progression may be topical as well.[36] Gunnar Myrdal's *An American Dilemma: The Negro Problem and Modern Democracy* is a classic example of such an historical work.

Fifth, it had major themes. All research has a core-idea, a delimited problem. In historical research a series of major themes related to this core-idea is evident. Like rivers and highways on a map these themes are routes over which the reader travels. He does not get lost. History, in fact all research, is threatened when it attempts to incorporate too many illusive details, distant facts, or isolated data. The certain sign of the amateur is lack of guideposts—no major themes.

Sixth, good historical research writing is creative. Research writing need not be dull; it should be objectively inspiring. Nothing is so solidly inspirational as a steady succession of facts, supportive data, logical interpretations, if the researcher sips with the poet and tempers his facts with creativity. A forceful rhetoric need not be prostituted; human warmth and stylistic quality can find exquisite expression in historical research. Carlyle said that Macaulay's *History of England from the Ascension of James II* contained "a great amount of rhetorical wind and other ingredients, which are the reverse of sense." Unfortunately, some historical research in education may warrant similar attack.

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[36] See John S. Brubacher, *A History of Problems of Education.* New York: McGraw-Hill Book Company, Inc., 1947.

Seventh, an inductive system of logic is employed. The investigator seeks to accumulate all facts, from which he then develops his ideas, concepts, and principles. To state a hypothesis then pinch and squeeze facts to fit one's belief is the delight of the ignorant. Deduction is rightly suspect in historical research.

The Descriptive Method

The descriptive method in educational research is not exactly *a* method; it is actually many methods which are grouped together because each of them has one thing in common—each attempts to describe the current status of a given situation.[37] Describing the current status is a kind of inventory and assessment, which seems to be the basic, preliminary step to the solution of many educational problems. It is for this reason that a large portion of the studies in education are descriptive. The point of difference among the various types of descriptive research is in the "how" of description. For example, description by interview and description by testing are quite different types of research, but each is basically descriptive.

Descriptive research is a structured attempt to obtain data—

[37] See James B. Conant, *The American High School Today.* New York: McGraw-Hill Book Company, 1959.

facts and opinions—about the current condition or status of things. It seeks to ascertain the prevailing condition at the time of the study. Descriptive research is much more than a hasty perusal of existing facts and circumstances; it is more than a subjective appraisal gleaned by flying low over the problem.

Descriptive research is predicated on the assumption that it is essential to know where we are and what we have done in order to know where we desire to go and what we want to accomplish. Many authorities have predicted that status or descriptive studies will be even more frequently used in educational research in the years to come. Their value may be measured by the extent to which large sums of money are invested in them by both public and private agencies. Sitgreaves and Soloman wrote: [38]

> For example the recent large foundation grants for research in almost all aspects of education usually demand status studies to determine the present position of education in our culture and so provide a basis for comparison and future evaluation.

An examination of the many theses and dissertations in education submitted in recent years indicates that the descriptive method is widely used.[39] Much of the contracted research completed by bureaus of educational research in colleges and universities in this country is descriptive in nature. Even more significantly much research conducted by teachers in their school environments is typically descriptive.

There are four levels of description in educational research: (1) The individual problem level, such as "A Descriptive Survey of Arizona Teachers' Attitudes Toward Merit Rating." (2) The case study level, such as "A Case Study Analysis of the Study Habits of an Eighth Grader." (3) The community level, such as "A Survey of School-Community Relations in a Time of Crisis." (4) The general or comprehensive survey, such as "A Comprehensive Survey of the Rosedale Elementary Schools, Rosedale, California, 1960."

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[38] R. Sitgreaves, and H. Soloman, "Research Methods: Status Studies and Sample Surveys," *Review of Educational Research,* 27:460, December, 1957.

[39] See Stanley Elam, *Research Studies in Education.* Bloomington, Indiana: *Phi Delta Kappa,* 1953, and yearly.

Whether the researcher conducts a horizontal study such as the comprehensive survey or a vertical, case study problem of a delinquent child or group of such children, he is involved basically in descriptive research. The precise type of descriptive research that a researcher decides to employ will be determined by the nature of his problem and the type of data which is needed. A review of various kinds of data-gathering instruments will illustrate this point.

Questionnaires. These instruments generally call for factual information.

Opinionnaires. These devices solicit the opinions and attitudes of respondents.

Documentary frequency. This research technique gathers data about the frequency with which a given term, name, concept, etc., is used in written reports; it is largely quantitative.

Content analysis. This is a refinement of documentary frequency in which the quality or strength of a given term, name, concept is gauged; this is both quantitative and qualitative.

Interview schedule. This is a face-to-face data-gathering method which can be structured by a set of questions or can be unstructured and free.

Structured observation. This method of gathering data seeks to ascertain how persons behave or react in given environments. It is generally structured so that all important aspects of behavior are recorded.

Checklists. These instruments generally identify the presence of a given item and focus on the quantity, not the quality of the item.

Rating scales, indexes, and scorecards. These devices record the quality of a particular item in relationship to a standard or norm, or to an ideal.

Tests. All manner of tests, written and oral, teacher-made or standardized are devices to collect descriptive information about the persons involved.

Much educational research is descriptive. So much so, in fact, that the teacher-researcher can easily be confused by classifications which are used in the literature. The following eleven types of descriptive research may be identified in a perusal of educational periodicals and research reports.

First, survey testing. This consists of testing a group to ascertain its prevailing condition with respect to the traits measured by the specific test or tests used. Many school systems do survey testing at the beginning or end of each school year. While in some cases no authentic research report is compiled, the basic data necessary for such a report are collected. If a teacher is concerned about reading readiness in a particular grade, about the effect of certain teaching methods, about the growth in intelligence or subject matter achievement, about the nature of an entire school system in terms of national norms, about identifying either the academically retarded or gifted—any such concern might lead to a survey testing type of descriptive study in the local school.

Second, interview. Many kinds of educational problems are best studied by a combination of instruments, all are geared to a central device—the interview. Especially when first-hand or primary data are needed and the researcher desires to obtain facts, reactions, and opinions is the interview an apt device. The more objective interview studies make use of an interview schedule or outline in which questions and responses can be categorized so that nothing desired is lost or mislaid in the interview and so that all information is received and reported in a systematic manner. For example, if a school system desired to investigate carefully the reasons for the failure of a much needed bond issue in a particular community, an interview-type study would be valuable. A simple, stratified sample of the registered voters might be interviewed in an objective, detailed way. The synthesis of reactions would be very revealing as to the bond issue failure and would point out changes needed in future attempts to expand the school plant or its educational program. As in most such descriptive studies, a single type of effort should seldom be used by itself. The interview can, and generally should be accompanied by other techniques of descriptive research.

Third, case study. Where some aspect of an individual's make-up needs study, the case study serves well. It is a comprehensive analysis and evolutionary description of an individual, with special regard to the problem under examination.

When a high school pupil is assigned to a remedial section in English, his individual progress needs charting. The case study method (in addition to other descriptive techniques) would be very useful for this purpose. Chronological records of all aspects of the student's adjustment to remedial work should be kept. Private conferences, testing, subtle observation, first-hand reports from the remedial teacher, parent reactions, and records and reports of progress made in his other class work, would provide the materials of his case study. It is easily observed that case study is more comprehensive than "keeping anecdotal records."

The case study method may likewise be employed in studying a small group of persons.[40] Here, even greater insight must be exercised in the planning and the structuring of the case study, in obtaining necessary information, and in the final synthesis of the research. Several researchers are generally needed when group case study is used.

Fourth, questionnaire studies. The mail-out questionnaire is the first technique of data-gathering to which many researchers turn. Just prepare a few questions, decide who might have some answers, mail it out, and hope for the best—this is too often the procedure in which the questionnaire is used. Needless to say, the value of such a questionnaire study is almost nil. Nevertheless, and especially when information is desired from widely scattered individuals, a carefully devised questionnaire can be the best solution to a problem. Schools use pre-enrollment questionnaires to estimate approaching school populations in all grades when other means may be too costly in time or money. Then, too, the questionnaire is useful to obtain the reaction of parents and teachers to certain issues in education: to merit rating or the twelve-month school year; to determine current practices in a given state with regard to minimum educational requirements for teachers; to obtain a picture of what methods of teaching arithmetic are currently in use in selected elementary schools; to analyze how a given group of schools in several states report pupil progress to parents. The opportunities are endless, but the questionnaire should not be allowed to become a fetish. The selection of a specific research device should be controlled by the nature of the problem to be solved.

Fifth, observational studies. This type of description, in the hands of a well-qualified person, can be highly valuable. It seeks to ascertain what people think or how they behave by direct, systematic observation over extended periods of time. Records are made of all evidence accumulated. The report resembles the case study report. The observational study is genetic since it reveals the growth and changes that occur in a given period of time.

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[40] T. H. Crowder, and J. J. Gallagher, "Adjustment of Gifted Children in the Regular Classroom," *Exceptional Child,* 23:353-63, May, 1957.

Observation of teachers in actual teaching situations has proven valuable to those under study and to those in preparation for teaching. The teacher may desire to observe his homeroom behavior under peer leadership or the group behavior of students at school elections, to observe and record a particular child's learning difficulties in English grammar or group or individual performance during examinations or the social behavior of a particular student during play periods.

Observation should be calculated, precise, never general; it should be objective. Impressions should be recorded immediately after observation or as soon thereafter as possible. Observation should be systematic, repeatable, and conducted for a period of several months if it is to be significant. Much training is required to observe carefully, for many important things may escape the unprepared.

Sixth, opinionnaire studies. In a given context the opinion of a person or group may be as important as a fact. If school patrons believe that a curriculum is soft, its content flabby, this opinion has a reality *per se* as potent for good or bad as the fact itself might have. Many issues in education are settled in the minds of people long before the facts are obtained. It is necessary to know what these beliefs are before re-education can begin. For example, an opinionnaire study of what local citizens believe is the teacher's role in pupil discipline may be prerequisite to making them understand what it should be. Or, knowledge of what factors teachers *believe* caused a forty-five percent turnover of teachers in a given school district may give us a clue to the factors that *did* cause it. Opinionnaires demand much the same scrutiny as questionnaires. Special study in the construction and use of the opinionnaire should precede its use in educational research.

Seventh, appraisal surveys. Appraisals are estimations or evaluations. Various instruments are employed in appraisal studies—checklists, scorecards, rating scales, and direct comparisons. Generally the validity of an appraisal is more reliable when it is arrived at by a team rather than an individual. School building appraisals, appraisals of curricula, of instructional materials, of multi-sensory equipment in the schools, of playground space and facilities, and of organizational structures in administration lend themselves readily to the survey device.

Eighth, content analysis. The antecedent of content analysis was documentary frequency, which was concerned largely with quantity rather than quality. Content analysis is more subtle in that it attempts to categorize words, phrases, concepts, implications. Its value depends upon the assignment of words, phrases, or concepts to appropriate categories in order to increase frequency validity.

Content analysis is a study of proportion. Books or series of periodicals may be analyzed in order to assign significance to an idea or problem under study. For example, the teacher who desires to study the current significance of guidance to the classroom teacher might use content analysis as a type of descriptive research. He might choose five periodicals designed for teachers, for example *Phi Delta Kappan, Educational Forum, The Instructor, Elementary School Journal,* and the *NEA Journal,* and examine every issue of these periodicals for a one-year period. In this manner, he may obtain a direct view of the relative position of guidance activities in the teacher's life as reflected in the content of these periodicals.

Ninth, job or activity analysis. Job analysis can be employed advantageously when a particular job (counselor, student advisor, principal, teacher, superintendent or board member) needs study. Much the same type of research can be used to analyze various school activities (counseling, teaching, coaching, homeroom sponsorship). An objective analysis of the functions rendered by a specific job will lend a great deal of insight to the kind of person demanded for such a job. Knowledge of the exact nature of an activity affords the researcher an opportunity to understand the setting which should accompany such activity, to become aware of time factors, and leadership functions. Governmental job classifications are often based on job or activity analysis. Fitting the proper person to the proper task should likewise be the aim of leaders in education.

Tenth, comprehensive school surveys. One of the broadest types of descriptive research is the general survey. J. B. Sears is considered the father of the school survey (in 1933 he wrote *The School Survey Movement*), but the survey idea has far earlier roots. Caesar Augustus made a survey when he called for everyone in his empire to report on a certain day to the place of his birth and to be placed on the tax rolls. The modern survey idea grew up in the sociologist's yard. Riis wrote a detailed description of economic, health, and social conditions in New York City in 1890, calling his report *How the Other Half Lives*. Many social surveys followed—some of entire cities, some of certain aspects of life, some of the social life of geographically scattered groups.

The first comprehensive school survey in the United States was reportedly conducted at Boise, Idaho, in 1910. Many aspects of the school were analyzed, its teaching staff, curriculum, and buildings receiving greatest attention. In 1911 the New York City schools were studied. The survey lasted slightly more than two years, cost about $100,000.00, and was so voluminous that it was published in three volumes. Numerous small booklets were later printed to stress certain aspects of the total survey.

The comprehensive survey, since its beginning, has undergone gradual but radical changes. It no longer is a one-man job. The best comprehensive surveys are the products of teams of researchers. It is no longer an "outsider's" job but often is the combined job of researchers from one's own state colleges and universities, specialists in the school system, and laymen who possess skills and insights in certain aspects of the school program. It is no longer a one-day or one-week project but generally is considered at least a nine-month task. It is more objective and scientific than in earlier years due to refinement of instruments and increased awareness and understanding of public education. It is now seldom a minority report but, more typically, broad involvement ensures its being a majority report. Its findings are less likely to be hidden by technical verbiage; and its researchers are more likely to share with local people the implementation of its recommendations.

Consumers of the research report today grow in their knowledge of methods of attack on educational problems by sharing in the research process. They develop new written resources for solving additional problems and, consequently, a greater awareness of the need for periodic, if not continual, investigation of school problems. Communities who have shared in comprehensive surveys generally develop a pattern of employing specialists who are not permanent staff members of the school system to assist in a consultantship, advisory capacity.

Today long range surveys are more common than ever before. Many school systems that have rapidly expanded in pupil population and program have found it valuable to pursue surveys from one to five years in duration. Some older systems, that have had a steady growth and whose public has suddenly become aware of an urgent need to conduct long range studies of their current practices, also use the longer type survey to great advantage.

Because of the extended time factor of the long range survey, the research process can often be geared into the operation of the school program. In this way, no intensive questioning period is noticed by teachers or public; objectivity is accelerated; self-study of practices is guided; and professional consultantship is carefully related to aspects of the school program as these activities naturally occur.

As in historical and experimental research there are pitfalls to avoid in descriptive research methods. Six weaknesses seem to be especially evident in the educator's use of descriptive methods.

First, descriptive reports sometimes are no more than mechanical accumulations of isolated facts and opinions. Descriptive research needs interpretation and synthesis.

Second, especially in decriptive research is it easy to generalize from meager observation. Care should be taken to limit the generalizations to the situation under study and to the areas in which substantial information has been obtained and verified.

Third, the role of evaluation is a minor one in descriptive research; care should be taken to give objective and thorough description the major role.

Fourth, the "one-eyed approach," obtaining descriptions from a single research instrument, may severely limit the value of descriptive research.

Fifth, avoid the tendency to attempt descriptions of problems too minute to lend themselves to examination by descriptive research or too vast to be encompassed by it.

Sixth, in descriptive research it is very easy for the researcher to become personally involved in the study process. Such personal involvement may make objective description impossible.

The Experimental Method

The essence of the scientific approach in educational research is found in the experimental method. In historical methods the researcher studies the past events which surrounded a certain problem; in descriptive methods he attempts to describe and analyze the current status of a problem or condition, somewhat as the camera records its subject. In experimental research as many components of the research situation as possible are controlled or held constant while the impact of one or several variables is measured scientifically. The historical, then, is the "what was." Descriptive is the "what is." Experimental is the "what may be."

The experimental method in the physical sciences has seemed so formidable and exacting that some educators have been reluctant to adapt this method to the study of classroom and school problems. This hesitancy is somewhat understandable. The experimental method was born and is still rooted in the physical sciences; its current nature is the product of centuries of scientific experimentation with quantitative data. The use of hypotheses, rigid controls, sensitive measurement devices, variables which can be accurately injected to measure their effect upon the problem under study have produced a research process which the educator respects but sees as having only minor application to the study of educational problems in the classroom.

In educational research, the teacher need not attempt to adopt physical science experimental methodologies. Indeed, he can not. He should adapt and shape the essentials of the experiment method to fit the type of research at hand. When thus adapted, experimentation in the classroom can be employed with highly desirable outcomes. Adaption is essential because the raw materials of research in education, the learning-teaching process, the socio-educational complex, are not chemical components ready to be formularized in a laboratory. Causal factors as experimental hypotheses in education are far more difficult to isolate than they are in subject areas in which data are largely quantitative.

Interpreted broadly, to experiment means "to try." Many great inventions and discoveries came about without a detailed experimental design. There is much to be learned from informal experimentation which lacks some of the simon-pure characteristics of the experimental method. Such experimentation should be encouraged and then shared with fellow teachers and administrators. However, merely "to try new methods," is not synonymous with the experimental method of research. What are some minimal considerations in the use of experimental methods in educational research?

1. The problem should arise from a considered intellectual curiosity. Whims, hunches, or prejudicial beliefs are not likely to be worthy of formal experimentation.
2. The hypothesis or anticipated outcome should be clearly stated. The research should then be planned around such a hypothesis. Avoid "trying something to see what happens."
3. Identify as many variables as possible before actual experi-

mentation begins. Label them as "controllable," "uncontrollable," or "controllable within specific limitations."

4. Select an experimental design for the study which is (a) Practical in terms of classroom operations, (b) Suited to best test the hypothesis. The ideal design may not be possible in the natural setting of the school; select the best possible research plan and proceed, aware of the limitations.
5. Try a small scale experiment in order to evaluate the research plan and to judge if the tentative hypothesis warrants a full-scale experiment.
6. Employ the most valid and reliable measuring devices at your disposal. Tests, and other measurement instruments in education are all relatively valuable. Choose them with care.
7. Plan for other participants and observers to share in the experimental project. Shun the urge to "go it alone."
8. Plan the experiment so that it can be as faithfully and accurately reproduced as possible. A repeat experiment will generally be necessary. Keep detailed reports of the process so that the first experiment may be reviewed or repeated later.

There have been some highly successful experimental studies in education in recent years. *The Eight Year Study* was experimental and descriptive in nature. As a classic study in secondary education it should be studied carefully in its original form. Several studies have been conducted of identical twins—one disassociated from its family group, the other in its home environment. Studies of groups of exceptional children have been made and the result of various introduced variables—such as dictatorial leadership, threats, rewards, and appeasements—measured. Experimental studies of physically handicapped groups and of "slow reader" groups have been made. Seib and Otten's report in *Harpers* [41] of some eighteen

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[41] C. B. Seib, and A. L. Otten, "The Case of the Furious Children," *Harpers,* 216:56-61, January, 1958.

"furious children" is a thrilling lay account of an institutionalized experiment with aggressive children. Various studies in the improvement of arithmetic teaching and learning demonstrate how experimental research can be employed in the classroom. In recent years, a great deal of experimentation has taken place in group dynamics, types of leadership roles, effect of group planning as opposed to outside dictation. Studies of the effect of authoritarian, laissez-faire, and democratic leadership in the classroom have been conducted. Reports of studies in methods of teaching spelling in the elementary school are available. The matter of class size has also been studied by formal experimentation.

A single root, a tap root, of experimental research in education is difficult to single out. Wolfgang Von Ratke, Basedow, Pestalozzi, Herbart and others made early attempts to find scientific answers to instructional problems, and in the late 1800's Edward Sheldon in the Oswego Primary Teachers' Training School, Francis Parker in his experimental school, and John Dewey in the Laboratory School at the University of Chicago attempted to evaluate instructional principles and theories under actual conditions by experimentation. Binet, Terman, and Otis devised means of testing groups for pupil ability in terms of intelligence. Measures of pupil achievement were developed by Stone, Thorndike, and Courtis.

Up to 1900 the life sciences were largely concerned with research methods which involved collection, description, classification and the observation of apparently correlated effects. As Thurston stated: [42]

> One of the early steps essential to a mature science in any field is the objective definition of elementary concepts where all

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[42] In Warren Weaver, *The Scientists Speak*. New York: Boni and Gaer, 1947, p. 3.

> science is a relationship between two variables and results are sloppy if one tries to deal with more.

After 1900 under the leadership of such men as Josiah Willard Gibbs, a more realistic approach was made to the experimental treatment of the life sciences. Instead of the one or two variable factors, his followers attempted to develop analytical tools which could deal with many variables. With the help of the mathematicians this approach led to statistical analyses, in which statements ended in probability, average tendencies, and correlations. Due to the many variables in the study of life sciences, particularly in the field of psychology and education, the experimental method is being steadily adapted to serve as a research method in the study of human problems.

What is an experiment in education? What are its elements? Beveridge has stated:[43]

> An experiment usually consists in making an event occur under known conditions where as many extraneous influences as possible are eliminated and close observation is possible so that relationships between phenomena can be revealed.

In the field of educational and psychological experimentation, the control of variables is difficult because of such factors as home and economic environment, association in and out of school, public fear of classroom experimentation, and many other influences which enter the picture when human beings are involved in an experiment.

The ideal situation in an experimental test is to control all but the two variables which are called the "independent (experimental) variable" and the "dependent (result) variable." A simplified example of this would be the striking at a person's face (independent variable) and the blinking of the eye or withdrawing of the head (dependent variable). Another example might be the use of a group of children's achievements as the result of an educational factor. The group would first be tested by some standard measure for ability to multiply; then after a period of special drills the group would be retested to determine the achievement, if any. Of course, there are factors in such an experiment that cannot be controlled; however, an awareness of such factors causes the researcher to interpret carefully and to re-experiment under similar conditions.

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[43] W. I. B. Beveridge, *The Art of Scientific Investigation.* New York: W. W. Norton and Company, Inc., 1951, p. 13.

A unique advantage of experimentation has been pointed out by Good and Scates: [44]

> It is a distinct advantage, with conditions artificially controlled to prevent stimuli and to secure relations without awaiting the occurrence of events in their natural environment over a relatively long period of time, as is necessary in history.

(It should be noted that uncontrolled observations and recording of normal children's behavior with no attempt to influence or condition the types of responses are descriptive or genetic; such studies are not experimental. They are measuring the "what is.")

There are four basic techniques available to the experimental researcher in education: (1) The study of an individual, (2) One-group method, (3) Parallel-group method, and (4)Rotation-group method. In the study of an individual, and in the one-group technique, a reliable form of pre-testing and post-testing is necessary. In the parallel-group method, two or more nearly equivalent groups are picked for study. Here a control group can be used as a comparison. In the rotation-group method two or more groups of equivalent subjects are chosen and the experimental factor is tried on each one in turn. Here, as in the previous method, the limitations of equating human groups should be recognized.

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[44] *Methods of Research*. New York: Appleton-Century-Crofts, Inc., 1954, p. 700.

The classroom teacher and administrator should not reject the experimental method as impractical in field research. In view of the problems involved in conducting experimental research, it is easy for the teacher and administrator to step lightly over this method of educational research, but this is a serious step to take.

> Thus, while experiment is in many ways the most scientific method of research, it presents (like all other methods) numerous pitfalls. In the last analysis it is chiefly the intelligence and ingenuity of the investigator, coupled with an objective attitude and a large amount of care and patience, rather than elaborate equipment or materials, that will guarantee successful results in an experimental study.[45]

Experimental research conducted under rigid laboratory conditions away from natural school environments will seldom inspire the educator. But field research is another matter.

> The organization of the Horace-Mann-Lincoln Institute of School Experimentation, with its declaration of purpose that envisioned the expansion of educational research centered in field studies; the general decline over the past 20 years of campus or laboratory schools as centers of educational research; the many developments growing out of the research ventures of the Association for Supervision and Curriculum Development, NEA —all point to the assumption on the part of field workers of increasing responsibility for making contributions to basic research.[46]

[45] Hillway, *op. cit.,* p. 174.

[46] Alexander Frazier, "Organization and Management of the Research Process," *Research for Curriculum Improvement,* ASCD, NEA, 1957 Yearbook, p. 247.

This stress on research and experimentation in the classroom and school, needs to permeate American education at its grass roots, in each school system. Education's great need is to conduct further research on real problems as they occur in the school. Experimental methods require an additional outlay of planning and insight; the results, however, pay a rich dividend in teacher growth and in professional understanding of educational problems.

Teaching and Research As Co-Activities

Effective teachers experiment naturally in their jobs, seeking better ways to assist learning and to increase their level of teaching effectiveness. Those teachers who are engaged in the improvement of their methods and techniques of instruction are often equally involved in study and research in their subject areas. Still other teachers relate their teaching to their research by doing intensive study in some limited area of their general subject-matter preparation. Most career teachers strive to obtain a depth of understanding in some field or aspect of a field. Each teacher needs to gain authority over some subject, to be better qualified than his peers in some area of knowledge. There is so much to know and so little time to accrue knowledge that teaching and research must become co-activities.

The fact remains. Many teachers neither plan nor conduct research and problem solving in their classrooms, nor do they try to apply the published findings of research to educational practice. The study guide or single textbook has a remarkable ability to make the insecure teacher feel secure. Just as some men prefer to grasp a crude hoe, bend their back, and chop away, some teachers desire to live academically simple lives.

Too many teachers try to peddle around the world of knowledge on an intellectual unicycle.

There are of course other reasons why teachers avoid conducting research in the classroom. "Where do we find the time to conduct useful research?" This is an echoing question. Most teachers are enmeshed in an 8:30 A.M. to 4:30 P.M. teaching-testing-guidance-supervision-sponsorship day. The hours which teachers spend in preparation, record-keeping, and evaluation for each eight-hour day are difficult to calculate: for some teachers, few, but for others, many. Special meetings of school committees, individual assistance to students, evening functions of the school, adult education instruction, and community service projects engage much time of many of America's teachers, both in large and small communities.

No, getting functional research on the teacher's agenda is not easy, but today's teacher has opportunities to combine teaching and research, to make one discipline complement the other. Three major opportunities are available.

First, the study of specific pupils who need intensive individual understanding is an area in which the teacher may profitably undertake research which augments and improves his teaching.

Second, the study of certain groups in the classroom or entire classroom groups can be conducted scientifically, and can thereby give the alert teacher greater perception of the learning group with which he must work. Teachers realize that each individual and each group is different from all other individuals and groups and that in order to teach effectively, they must thoroughly understand the learner or learners. Research can help provide this understanding.

Third, teaching and research can become co-activities as the educator works with problems which directly impinge on the teaching and learning process. The question of "what to teach" is certainly unsettled; the "how to teach" question certainly needs a vast amount of local experimentation. In most school districts, resource persons and facilities are available to assist teachers in the study of teaching and learning problems. The teacher or administrator who succeeds in uniting teaching and research cannot help but experience a deeper appreciation of the educative process and a greater awareness of his own value to his profession.

Personal Values Derived from Involvement in Educational Research

What individual benefits may the teacher and administrator expect to derive from placing practical research and teaching or administration on a parallel plane?

First, participation in practical research or problem solving provides teachers and administrators an avenue for intellectual freedom and independence of thought. Too easily local educators can become tightly bound by rigid institutional processes, customs, traditions, and routines. The good teacher must be alert against taking on an assembly-line nature. Certain institutional structure is needed, of course, to house, finance, staff, and maintain schools. But the teacher and administrator must be intellectually free, not creatures of habit. Research can contribute much toward maintenance of intellectual freedom.

Second, research in the local school setting provides a sort of preface to professional action. Planning, study, critical thinking is a natural prelude to convictions. Research provides opportunities to reconnoiter mentally, to assess the state of things. Teaching sets a fast pace; activities which help to slow down this race should be sought after and enjoyed.

Third, research sharpens teaching effectiveness and improves the educational program by applying the scientific method to educational problems. Cooper listed the following outcomes of research: [47]

1. Adaptation of education to individual differences of pupils.
2. Reduction of emphasis on the doctrine of 'formal discipline' . . .
3. Diversification of the curriculum.
4. Improvements in teaching methods and teaching aids.
5. Improvements in school organization, particularly through the consolidated rural school.
6. Improvements in school buildings.
7. Improvements in financial support for local school districts, principally through state aid.
8. Improvements in methods of educational research.

The educational literature is replete with examples of the value of functional research in improving instruction.[48]

Fourth, research helps to develop the expression skills: reading, writing, speaking, and listening. In a day in which teachers are criticized for the condition of the "3 R's," each teacher should exhibit some personal proficiency in these matters, in addition to possessing the ability to teach them. Language is the vehicle of thought; it must, therefore, be in good working condition.

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[47] D. H. Cooper, "The Impact of Research on Education," *Phi Delta Kappan,* 35:17, October, 1953.

[48] See Alexander Frazier, "Learning About Reading Through Action Research," *The Instructor,* 67:6, February, 1958; M. N. Smith, "We Improved Instruction by Action Research," *NEA Journal,* 44:229-30, April, 1955; A. W. Foshay, "Curriculum Improvement Through Action Research," *NEA Journal,* 46:265-269, April, 1957; Dan C. Shannon, "What Research Says About Acceleration," *Phi Delta Kappan,* 39:70-72, November, 1957; and A. L. Routman, "Using Educational Research in Improving Instruction," *Educational Leadership,* 7:181-183, December, 1949.

Last, research activity can increase one's critical thinking capacity. Man grows in intellect as he faces problems scientifically. Study habits can be improved, sources for facts can be tapped, a certain orderliness in the perception of problems can be achieved through research on educational problems.

Professional Ethics for Teachers Who Engage in Research

Professional ethics in educational research deal with the teacher-researcher's relationship to the human subjects that are involved, either directly or indirectly, in research activities. The more personal and penetrating the relationships are among persons, the greater is the need for ethical behavior.

Ethical Principles

Certain ethical principles should be adhered to by teacher-researchers as they engage in research in the school or classroom.

1. Data obtained should be confidential as it relates to individual students or their parents. No specific data should be publicly disclosed unless students and parents consent to such disclosure. Data collected should be given to special school personnel such as counselors and administrators, who should regard such data as personal and confidential.
2. Data collected should relate to school adjustment and/or achievement. Certain personality tests, which in given situations have questionable relationship to school adjustment or achievement, should be administered only after careful consideration.
3. Teachers should conduct only that research for which they are qualified. A professional person knows and remembers his limitations and boundaries. Skills and insights are requisite to the conduct of research. The field of education

is broad; not many professional educators are qualified to conduct research in several branches of education.

4. Parents and the general school public should be informed about research projects which teachers and schools are conducting. Information-giving is necessary in order to develop an understanding lay public. Secretive research breeds fear and distrust among the school public. Oral and printed information should be channeled through organizations within the school and by individual school personnel.
5. Teachers should discuss research proposals with their immediate administrator so that this person is aware of research activity. Such administrators can offer valuable advice and assistance to teachers as well as provide needed supplies, equipment, and time for research activities.
6. The school board should be informed by the chief school administrator of research projects in process and of findings which such projects reveal. Board members will thus more likely be amenable to consideration of any alteration of school policy which might be desirable as a result of research findings and conclusions.
7. The teaching faculty in any school is a team, a coordinated staff, and, therefore, personnel should be informed of research activities which individuals in the school system are conducting. Most teachers are proud to have research regarded as a necessary corollary to the improvement of the educational program.
8. Research should be related to teaching and learning. "Hobby ideas" or "curiosity binges" should not be pursued during the teacher's duty-hours.
9. Research activity should not interfere with the teacher's primary task of instruction. Wherever possible, the teacher's research activity should be designed to contribute to the improvement of instruction and to the illumination of problems which restrict superior teaching. Fact-finding tasks which are largely mechanical in nature should be performed by the school clerical staff.

10. Research should not become the gauge for measurement of teaching effectiveness. The participation in research activities may or may not signify superior teaching effectiveness. Sometimes professional educators engage in research, community participation, and extra-curricular activities in order to veil their lesser abilities in teaching.
11. Classroom research at all times should respect the learners involved. The individual must not be viewed as an ingredient in the research laboratory.
12. A copy of all school-related research conducted by teachers should be presented to the immediate administrator as soon as the research study is completed.
13. Teachers should disseminate the findings and implications of their research by way of the educational periodicals whenever possible.

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    The annual provides a general summary of educational developments over the world, and then discusses in some detail the status, developments and trends of education in fifty-five nations of the world.

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1. *Journal of Educational Research.* The *Journal* is published monthly except June, July, and August. Each issue contains a variety of research related articles usually with comprehensive documentation.
2. *The Review of Educational Research.* The *Review* is published five times yearly. Each issue is devoted to a broad educational topic. The *Review* treats five topics a year and continues the cycle to cover the following eleven broad subjects:
    - Administration
    - Curriculum
    - Educational Measurement
    - Educational Psychology
    - Educational Sociology
    - Guidance and Counseling
    - Mental and Physical Development
    - Language Arts, Fine Arts, Natural Sciences, and Mathematics
    - Research Methods
    - Special Programs
    - Teacher Personnel
3. *NEA Research Bulletin.* This is published four times a year, in February, April, October, and December. Occasionally special bulletins

are printed. The *Bulletin* has an attractive format designed for busy teachers and administrators. Colored, graphic presentations and a concentration of facts make this an excellent resource for teachers.

4. *What Research Says to the Teacher.* This series of popular pamphlets is produced jointly by the Department of Classroom Teachers and by the American Educational Research Association of the NEA. The following pamphlets have already been released and others are in process:
    Teaching Reading (Arthur I. Gates)
    Teaching Arithmetic (R. L. Morton)
    Teaching Spelling (Ernest Horn)
    Teaching Handwriting (Frank N. Freeman)
    Personality Adjustment of Individual Children (Ralph H. Ojemann)
    The Learning Process (William Clark Trow)
    Evaluating and Reporting Pupil Progress (John W. M. Rothney)
    Guided Study and Homework (Ruth Strang)
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    Group Processes in Elementary and Secondary Schools (Louis M. Smith)
    Teaching the Social Studies (Jonathan C. McLendon)

Part II

CASE STUDIES

THE STUDY OF INDIVIDUALS

3.

THE most effective teaching is accomplished by the teacher who understands the problems of individuals in the classroom and knows the difficulties he must overcome or work with as he teaches. A teacher who knows that a child's attention-getting behavior springs from his need for affection, that tardiness is due to no one being awake to prepare his breakfast, or that daydreaming is an attempt to escape from difficulty or just unpleasant situations, that an adolescent's petty theft is due to the fact that he owns so few things, that a child's seeming disinterest in what takes place at the chalkboard is due to the fact that he cannot see that far—such a teacher will invariably be more stimulating, more perceptive, and more understanding.

Until recent times, many parents and teachers have been so occupied with the adult idea of what children should become that little importance has been attached to what children are. The study of individuals in the classroom, therefore, is almost a novelty. The teacher, especially in the elementary grades, has unparalleled opportunities to study children. The extent to which each teacher takes advantage of this opportunity depends on personal training, experience, insight, and motivation. The classroom teacher, especially at the elementary school level, should not transfer the study of individuals to special school personnel unless specialized insights and abilities which the teacher lacks are needed. Special personnel should augment the case study work of the teacher. The teacher responds best to those problems in which he is an investigator; case studies conducted by experts fit too neatly into file cabinets. Teacher involvement in the research process enhances the probability that decisions will be made and actions taken toward the alleviation of the problem under study.

To those readers who question the ability of teachers to study individuals in the classroom or the validity of the practice: A teacher makes interpretations, judgments, and decisions concerning students every day. It is highly desirable that teachers learn to study individuals consciously and systematically, in a research fashion, rather than to do so unconsciously as crises arise. The teacher need not usurp the function of the guidance worker in order to study certain individual students. The classroom worker should carefully avoid the use of specialized clinical tools and techniques for which he lacks adequate preparation, just as school guidance workers should not attempt to practice psychiatry. The tools and techniques for studying individuals are many; most of these tools fit the teacher's hand perfectly. Such tools and techniques as projective tests and individual depth therapy should be employed only by persons qualified by training and experience.

Why should teachers study individuals? What are the common elements of an individual case study? What specific methods and techniques can teachers best employ in the classroom? How can these methods be used in actual case studies of school children and youth?

The Value of Objective Analysis of Individuals

One of the key values of studying individuals is found in the growing recognition that teaching is not telling. In earlier centuries teaching was almost entirely an intuitive art. The teacher relied on his own personal experience as a learner to gain insight into how to teach. Stress was placed on the transfer of subject matter from teacher to class. Of late, teaching has been viewed as basically an individual task; grouping learners into classes is recognized as a physical necessity. This focus on the learner has prompted teachers to develop a greater concern for knowing and understanding individuals in the class in as much detail as possible. We teach the individual, not the group, and certainly not the textbook.

The wide range of student ability, interest, and motivation in today's classrooms at all levels demands that teachers give as much attention as possible to the study of individuals who depart significantly from the norm. Mere casual inspection will not yield the essential information teachers must have about their students; and certain students who show evidence of being unable profitably to pursue the work of a regular class, or the modal group in the class, need even more intensive study and research. Such students are not always "slower" than the group, the ones who can't "keep up." Many students of superior ability, as well as those with special problems, need the personal understanding which can come only through extensive individual research by the teacher.

Educators recognize the fact that every learner is unique in many ways. Persons of all ages go through a series of rather common developmental tasks; however, not all learn to walk or talk at the same chronological age, nor to read or write, nor to form friendships, nor do all of them plan adult careers at some common magical age. A few members will vary greatly from their class peers in physical development, mental ability, and so on. The teacher must understand as much as possible about these students in order to teach effectively. Research can be the key to this understanding.

The study of individuals in the classroom is important because behavior is caused; it is, among other things, the reflection of the person's environment. Actions stem from motivations and desires of many sorts; it is motivation finding overt expression. The fact that classroom groups are large and that many students and teachers are mobile, demands concentration on the study of individuals. Seldom will a teacher know many of his pupils well by virtue of having known them for years. Yet he must know them well if he is to understand their behavior.

The study of individuals in the class is further valuable because the teacher needs to analyze objectively the class composition in order to get clues for teaching. Such clues relate both to subject matter and to teaching methods and techniques. The nature of the learner and the learner group must be understood if the teacher is to exercise instructional skills and to plan for learning to occur.

The career educator has a concern for broadly influencing children and youth, as opposed to a limited concern for helping students pass tests or obtain grade promotions. He realizes that research study of certain individuals opens the door to improved teaching practices and hence to the greater influences of education upon mankind.

Roots of the Study of Individuals

The earliest scientific studies of children were conducted by the "baby biographers." In 1831, Bronson Alcott published a developmental biography of his eldest daughter, Anna. Preyer, a German embryologist, published *The Mind of the Child* in 1881. It was a systematic daily observation of his son from birth through the third year. In 1893, M. W. Shinn wrote *Notes on the Development of a Child* and, in 1900, *The Biography of a Baby.*

In 1883 came Hall's *The Contents of Children's Minds Upon Entering School.* G. Stanley Hall, no doubt, was America's greatest influence in the study of individuals, in spite of the fact that his studies, and those which he prompted others to conduct, were not as scientific as studies in this field were soon to become. In 1893 he founded the National Association for the Study of Children. One year later a Department of Child Study was organized in the National Education Association. Individual states began to form state associations. Societies of child study began in England in 1894, in Poland in 1897, in Germany in 1899, and in France in 1901. Thorndike's published beginnings in the field of educational measurement came in 1901 with his *Notes on Child Study*. The first International Congress of Child Study was held in 1906 in Berlin. Lamprey developed in 1908 the first Pupil's Cumulative Record which he used in his training school in Boston. Lamprey's work prompted a flood of pupil record forms; however, not until the 1930's was the cumulative record a commonly used device for recording information about students.

Hurlock has pointed out that the effect of the early child study movement in America was four-fold.[1]

1. It emphasized the individual rather than the school as a focal point of interest in study.

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[1] Elizabeth Hurlock, *Child Development.* New York: McGraw-Hill Book Company, Inc., 1950, p. 8.

2. It stressed the importance of the early years as a foundation for mature personality development.
3. It pointed out the need for more definite, reliable, factual knowledge about children; and
4. It brought about a realization of the need for more controlled, more analytic, and more accurate methods.

In later years, nursery schools were established and provided further opportunities to study children in groups. Longitudinal studies were begun by Baldwin at Iowa University. Dearborn and Rothney published their Harvard Growth Studies. Watson conducted conditioning experiments with infants and children. In the late 1930's Lewin and his students studied children in carefully planned situations, observing, recording, and rating such things as frustration, aggression, regression, leadership, and group interaction. Longitudinal studies now became more numerous, with Terman's *Genetic Studies of Genius,* over a 25 year period, a classic of its kind. Also, in the 1930's, attention turned to the need for more information about adolescence, and the modern-day junior high school had its beginning. Moreno first presented a series of sociograms to a medical convention concerned about the relationship of personal and group adjustment to total well-being. In the 1930's, he and Helen Jennings applied sociograms to the study of school children.

Mention should be made of the development of the testing and measurement movement, which produced many outstanding accomplishments and made research in education vastly more scientific and accurate. Although attempts to measure school achievement can be traced back many centuries, the testing movement is commonly dated from the work of Thorndike and his students. Stone, in 1908, and Courtis, in 1909, published tests to measure achievement in elementary arithmetic. Thorndike's handwriting scale was approved in 1910. The next year Azores published a scale in which the samples of handwriting were arranged in order of increasing difficulty as determined by the rate at which the samples could be read. The Hillegas Composition Scale (1912) followed the Thorndike quality scale pattern. In 1913, Buckingham published a spelling scale in which the words were arranged in order of increasing difficulty. The criterion of difficulty was also used by Woody in building an arithmetic scale and by Trabue in constructing a language scale; both were published in 1916. Other tests published before 1916 were Starch's Reading Tests, his Grammatical Scales, Punctuation Scale, Grammar tests, and his Latin Vocabulary and Reading tests; Thorndike's Visual Vocabulary and Understanding of Sentence Scales and his scale for the merit of drawing by pupils 8-15 years old; and Kelly's Kansas Silent Reading tests. From 1917 to 1928 the development of tests and scales was so rapid that just two decades after the appearance of the first standardized test, nearly 1300 such tests had been catalogued. In 1940, a count of unpublished tests exceeded 2600.[2]

The classroom teacher has been provided with a generous variety of tools and techniques for the study of individuals. No single tool is sufficient; the functional integration of many tools is necessary to develop a realistic and comprehensive picture of any individual. Some of these tools require delicate and artistic use; others demand objective administration and interpretation. In any case, teachers need to assemble and maintain comprehensive case histories of individuals. No one is in a better position to provide the necessary raw data for research.

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[2] W. S. Monroe, *Encyclopedia of Educational Research.* New York: Macmillan, 1941, p. 1283.

The Elements of Individual Case Study

Each case study is of necessity unique, yet there are common elements to be found in nearly all instances. Three questions will serve to illustrate these elements.

First, what are some essential parts of a study of an individual?

1. The individual's background and environment.
2. School and community records concerning the individual.
3. A scientific, physical description of the person.
4. The mental ability of the individual as shown by tests.
5. The emotional and psychological development of the individual.
6. The educational performance of the individual as reflected by teacher observation, grade placement, interviews, and achievement tests.
7. The identification and assessment of school problems which beset the individual.

Second, what are some practical suggestions for the proper study of individuals?

1. Develop a clear-cut purpose, a stated reason, for conducting the study.
2. State this purpose in a specific, delimited fashion. Precisely why is such a study necessary?
3. Make a list of all information needed in order to make sound judgments and inferences. What will you need to know about the individual?
4. Tap all possible sources of evidence which will illuminate the problem under study.
5. Search for the significant, reoccurring, critical incidents in the case history, but do not overlook the seemingly incidental things.
6. Study the individual from all angles and vantage points.

7. Conduct the study over at least a several week period, depending upon the nature of the problem.
8. Conduct the study with the aid and assistance of other school personnel.
9. Study the individual in a calm, constructive atmosphere, without threat or crisis.

Third, in spite of the fact that a case history should contain many concrete facts, the case study should be concerned also with operational evidence. What are some of the situations the classroom teacher should be concerned with in the study of individuals?

1. His approach to school tasks.
2. His emotional reactions in various situations.
3. His physical abilities, in class and on the playground.
4. His willingness to serve and help others.
5. His relationship to class distractions and disturbances.
6. The influence of family and home upon him.
7. His associations in the classroom.
8. His feeling about the importance of academic success.
9. His response to positive criticism.
10. His response to personal praise.
11. His moral and ethical behavior.
12. His knowledge of and relationship to the community and larger world.
13. His behavioral prejudice.
14. His need for affection.
15. His responses to the opposite sex.
16. His reaction to authority in the school.
17. His ability to assess others accurately and fairly.

Research Methods and Techniques

There are many research methods, techniques, and resources which the teacher can employ in studying individual pupils. Some of the more useful ones are listed below.

School permanent records
Teacher's cumulative record
Teacher anecdotes
Interviews: individual and small group
Observation: structured and unstructured
Individual tests: teacher-made and standardized
Role-play
Autobiography: upper elementary and high school students
Personal inventories, checklists, and rating scales
Secondary interviews about the individual
Written materials and work samples
Behavior journals
Sociograms
Questionnaires
Opinionnaires
School diaries
Time sample study
Home visitation

As Walker puts it:[3]

> While often spoken of as a method of research, the case study is not so much a unique method as it is the application of all relevant technics to the study of a single individual. This individual may be a person, a family, a group, a program, a situation, an institution, or a community.

The case study of an individual in a school setting calls for the use of many of the above techniques. A case *history* is the end product of a mechanical and clerical task of collecting information about the individual. A case *study* is one important step further. Case study is data collection, synthesis *and* interpretation in the light of the problem under study. The development of a complete record about an individual student results in a case history. Such a case history, plus other materials and data, is the raw material essential to a successful case study. A case history should be maintained so that much evidence is collected over an extended period of time. The case study, however, contains the culmination activity in which knowledge about the individual is employed to help the individual adjust to a precise educational problem.

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[3] H. M. Walker, "Methods of Research," *Review of Educational Research,* 26:329, June, 1956.

Most of the methods and techniques usually used in the study of individuals are employed in the two case studies which follow. Case I, "Jimmie Little: The New Boy Who Entered School Late," illustrates how the teacher may study a lower elementary school boy from a migrant background. Case II, "The Clown in the Class," describes a high school boy whose behavior demands that his teacher conduct a careful study of him. In these cases teachers may see, in use, certain research techniques which are widely applicable to the study of individual students in the school. There is no single formula for the development of case studies of individuals. Each specific study calls for its own approaches and research techniques.

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CASE NUMBER I

The Boy Who Entered School Late

4.

A Word about the Cases in This Book

The five cases contained in this book illustrate the type of classroom research teachers can conduct. The problem of each case is a practical problem, not highly theoretical. The cases are not models. They are not perfect illustrations of "neat" studies. Instead, each case contains some excellent characteristics, each leaves some room for reader-analysis and criticism, and each needs some expansion or alteration. The reason for presenting such cases is four-fold: (1) to illustrate the naturalness of teacher problems, (2) to suggest ways to approach such problems, (3) to demonstrate specific research methods and techniques, and (4) to provide the raw material to stimulate the individual reader or class group to analyze critically examples of teacher research.

Problematic Situation

IT WAS November 17. The crisp fall air felt good as I drove to school. The school year, my third in teaching, had gotten off to a splendid start. My second grade class numbered 31 boys and girls and each was now becoming an individual to me instead of being part of the group blur of every new class. I liked my work.

Sky View School is a large elementary school containing 627 students in Grades 1 through 6. Its location is on the rim of a new housing area which a few years ago was rich agricultural land that produced plump heads of lettuce, celery, and some fruits.

As I parked near the school, children waved and shouted greetings. The school buzzer sounded at 8:45 and soon my second grade class leaders were busily attending their several jobs. We had hardly begun class when Mr. Caswell, the principal, entered with a small boy. He introduced the boy to me and gave me a data card on the child. As we talked Jimmie eyes the tiles under his feet, and the class eyed Jimmie.

I told Jimmie how glad I was that he had come, and I introduced him to the class. They replied with "Hello Jim," "Hi Jimmie" and other friendly greetings. We always kept a free desk with paper, colored chalk, and pencils in it in case a new student enrolled. It makes the student feel more welcomed. Jimmie's new desk was located between two rather outgoing youngsters—one was a cute, pony-tailed girl named Brandee Lynn, the other was David, a plucky boy who arrived at school each day as neat as a pin and left some few hours later badly in need of a sartorial retread.

Andy was our class member who had been elected to help any new students who enrolled in our class in November. He could hardly wait to show Jimmie around the room and to make the "new boy" feel welcome. Jimmie soon had several new friends.

After about a week, I began to realize that Jimmie was in need of more understanding and help than I could ever give him by casual observation or as just another member of my class of 32 youngsters. Jimmie's adjustment to class work had been almost nil. His ability in language arts, especially in reading and spelling, was apparently very limited. I had few facts to go on; I did not even know the precise areas of difficulty, but I was determined to develop a more intelligent diagnosis of his needs.

I sensed a teaching problem which demanded more knowledge and information about Jim than our sketchy school record card revealed. I knew that I must single him out for quick, intensive study in order to help him make his best adjustment to school and to gain as much as possible from his school work.

The Specific Problem

The objective of my study was to accumulate and interpret pertinent facts about Jim that would aid me in helping the boy to adjust academically to a new school. This was not a case that could be referred to the school counselor. I believed that in the process of studying the boy myself, I would become better prepared to help him learn. I decided that it was a "teacher problem." Whether I had the time or not, it was my job.

The Study Play

I began in a fumbling fashion to develop a list of all of the information I needed in order to teach any of my students effectively. As this list developed, it became obvious that working from a list of generally needed items would be time-consuming, erratic, and illogical. I took the long list of items already jotted down and began to develop an outline or plan for the study of Jim. This was the final product of hours of thought.

I. A Personal History of Jimmie
  A. Physical history
    General health
    Hearing

            Vision
            Speech pattern
            Food and rest habits
    B. Psychological history
    C. Past educational history
    D. Family and home background
II. A Status Report on Jimmie
    A. I. Q.
    B. Achievement testing
    C. Teacher-made tests
    D. Interests and aptitudes
    E. Pupil-to-pupil relationships
    F. Behavior descriptions
    G. An analysis of class work
    H. Personal interview
III. Summary of Conclusions and Interpretations

The Accumulation of Data

The creation and possession of this tentative outline gave me clearer vision of my job. I began to plan where and how certain facts and insights could be best obtained. Techniques for accumulating evidence about Jim were evaluated and, finally, exact routes were determined. The following methods of collecting data were listed: (1) Home visits, (2) Examination of school records, (3) Tests: diagnostic and achievement, (4) Teacher anecdotes, (5) Classroom observation, (6) Analysis of class work. I decided to approach the task chronologically and first gather the personal history of the boy.

Our school maintains a Record Card on each child. The principal's office keeps the cards on each student. The record card file is chiefly used as a directory for contacting parents; it contains little information which would truly describe the child.

After consulting the Record Card, I obtained a Cumulative Record Folder which was partially filled in by the clerical staff

SKY VIEW SCHOOL

Individual Record Card

Student's Name Jimmie Little Grade 2

Parent's Full Name Mr. and Mrs. Cloyd F. Little

Address The Jeffrey Farm

Phone Number of Parent None

Other Siblings in Sky View?

Names and Grades None

Date Student First Enrolled November 17, 1959

Enrolling Parent's Signature Mrs. Cloyd F. Little

of the school. There was much information yet to be obtained. I decided to visit Jimmie's home in the evening at my earliest convenience. The school Cumulative Record Folder was to be my main data-recording instrument; however, I hoped to gain much additional information. Jimmie took home a note from me to his parents. I asked if I might call on them the following evening around 7:30 P.M. in order to meet them and to learn more about Jimmie's past schooling. The next morning Jimmie eagerly dug in all his pockets and finally produced a return note which read, "Yes."

I arranged for the school nurse to check Jimmie's vision, hearing, elemental coordination, and reflexes for me the day before I visited his home. I told the nurse that I would try to obtain from his parents additional health history which might be pertinent. These tests revealed that our 32nd classmate was a healthy child but slightly underweight.

The afternoon of my evening visit in Jimmie's home, the students produced an assortment of Thanksgiving Season pictures—pioneers with very large axes, turkeys that leaned tipsey-like, and orange pumpkins with each student's name on the front and on the back a list of new words that each student could both read and write. Learning enthusiasm and slight exaggeration called for some pumpkins to be larger than I really had intended. Each child happily clutched this assortment and disappeared. In the quiet of my room I heard feet lightly approaching. It was Jim. He said, "Miss Janson, you keep my pictures and bring them with you tonight." I replied that I'd like that very much and assured him of my impending visit.

Cumulative record folders are excellent depositories of details which the teacher can't possibly remember about each child, but I decided that they were not appropriate to take along on such a home visit as mine. I made notes of essential information that was lacking and remembered to put a sharp pencil in my purse.

The Home Visit and Interview

Jimmie lived near a large farm house which I assumed was owned by Mr. Jeffrey, a long-time resident of our city who employed several migrant families as farm workers. The small, rented house was shrouded in darkness but as I drove closer, a faint porch light came on. My knock awakened the animal instinct of Jim's dog, Pete, and I heard a "Yip" as Pete was silenced, obviously under pressure.

Mr. Little opened the door to a clean, if not opulent, living room. His hands were huge and wrinkled, and he greeted me with a Southern dialect which I had not noted in his son's speech. Mrs. Little came in, apron in hand, quite nervous, and shook my hand. I ruffled Jim's hair and remarked that we were glad to have him in school. Pete growled. Mr. Little led the dog outside, shaming him en route.

"I've come to get acquainted with you and to get some information about Jimmie so that we at the school can help him make up for his late entrance to school," I explained.

Mrs. Little indicated that no teacher had needed any information about the boy before, but that I was welcome.

"He ain't done nothin', has he?" parried Mr. Little.

"Of course, he hasn't," replied Mrs. Little. "He would have told us if he had." Jimmie nodded agreement.

I assured the family that Jimmie was well behaved and obedient but that it appeared from his class work that he had missed some school and that we wanted to obtain a complete picture of his past schooling.

"Where did Jimmie attend school in the early fall?" I asked.

"Well, we were moving then and when we first settled I didn't find work so we kept moving till we got here. He didn't go to school them months."

"Well, where did he attend first grade?" I inquired.

"That was in Smithville, Texas, mostly, but then we moved outside of Fort Bend, in Arkansas. Let's see, that was in around April, I think. Anyway he went to school in Fort Bend for about six weeks but we had to push him to school ever' day."

"I see. It is often hard for children Jim's age to adjust to new schools and new teachers. Mr. Little, I believe you work for Mr. Jeffrey."

"Yep, that's right, and so does the Mrs. She keeps house some and I work at everything."

"Is Jim an only child?" I inquired.

"That's right," smiled Mrs. Little.

"We are interested in every child's health in addition to his past schooling and his family. Do you recall if Jimmie has had immunization shots for small pox, typhoid, diphtheria, Schick test, or the tuberculin test?"

"Wait," replied the mother, "I keep things like that in his book."

In a moment she returned from a bedroom with a worn, cloth-bound book. It contained the child's birth certificate, a marriage license, some yellowed newspaper clippings, two report cards, and a certification of small pox and diphtheria vaccination dated three years ago.

She stated that Jimmie had been exposed to measles twice but that he had shown no outbreak.

"Well now, let's get down to school," I ventured. "Does he seem to like our school?"

"Seems to; he hasn't said much," said Mrs. Little. "He has trouble, though, with reading and writing, although he can count and figure a little. Maybe his eyes aren't too good. He doesn't try to read much."

"His eyes are fine. Our school nurse checked them just today. Also, his hearing and speaking are fine," I assured her.

The visit ended with genuine appreciation for my visit. I assured them that I would come again and that Jimmie would be helped in every way possible in his school work. While returning to my apartment, I made mental note that Jimmie's father seemingly had a meager education but that his mother seemed more able to help the boy. Both felt a concern for the child, but I was sure that economic necessity had taken priority over other considerations. Most migrants in our country, I decided, love their youngsters and are concerned with their education, but changing schools creates gaps in the child's educational development. I was intent on determining what these deficiencies were in Jimmie's case. (I remembered that I did not say good night to him; he had fallen asleep on the couch beside his mother.)

Over coffee later that evening, I reconstructed the home visit and listed several inferences: (1) Jimmie's parents were not personally able to render skilled parental attention to help correct educational deficiencies. (2) Their personal contact with the public schools was limited to taking, sending, or pushing the boy to school. I imagined that they had little knowledge of his present curriculum. (3) I believed that both parents would constructively receive every effort on my part to help the boy. (4) They could be guided to become more able to help Jim at home with his school work. (5) Printed learning materials in the home were scarce and oral communication within the family was limited to the basics. (6) Jimmie had few after-school and weekend contacts with other children because his home was located about a half mile from the cluster of homes which our school primarily served.

My case study file about Jimmie was beginning to take shape. I had pride in my plan and recognized that in a very few hours I had learned a great deal about the boy. Three further steps were now necessary: (1) I requested the school secretary to write for a report of Jimmie's work during his first year of school. I requested any information other than grades which might help us work with Jimmie's seeming areas of difficulty—reading and spelling. (2) I arranged to have Jimmie take an achievement test and for five other members of my second grade to take a second achievement test in Language Arts, since they had already been administered a general achievement test in October. The principal and our supervisor helped in the selection of the test.[1] I decided that testing Jimmie in a small group would be better, and, besides, there were five other students that I had earlier concern about but to whom I had given little scientific diagnosis other than that obtained in the process of teaching. (3) I decided to use the behavior journal technique in which a log of incidents or anecdotes is recorded. I constructed a plan to observe Jimmie in a variety of learning and playing situations, at morning and afternoon, in language arts and in arithmetic for short spans of time, but during times when I could concentrate on him. Each anecdote or incident would be prefaced by the date, time of day, and specific activity in which Jimmie was engaged during my observation. Since I knew some of the weakness of observational descriptions, I decided to study two sources in order to improve my ability to observe.[2]

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[1] There are several excellent tests of achievement in language arts. No single test is, therefore, named in this case.

Testing

The class had taken an achievement test before Jimmie enrolled, so I selected the five persons with low or questionable scores and retested them with Jimmie. This gave me a second test score on these five and in addition it placed Jim in a group testing situation, which, I reasoned, might be better than singling him out for an individual test. The results of this test are found in Table I.

Table II presents total scores in comparison with I. Q. while Figure 1 shows Jimmie's scores in relation to the class medians.

Behavior journal

It is good practice to observe and record pupil behavior in a systematic, planned manner. Teachers should avoid record-

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[2] American Council on Education, *Helping Teachers Understand Children.* Washington, D. C.: ACE, July, 1945, pp. 21-40; and Verna White, *Studying the Individual.* New York: Harper and Brothers, 1958.

TABLE I

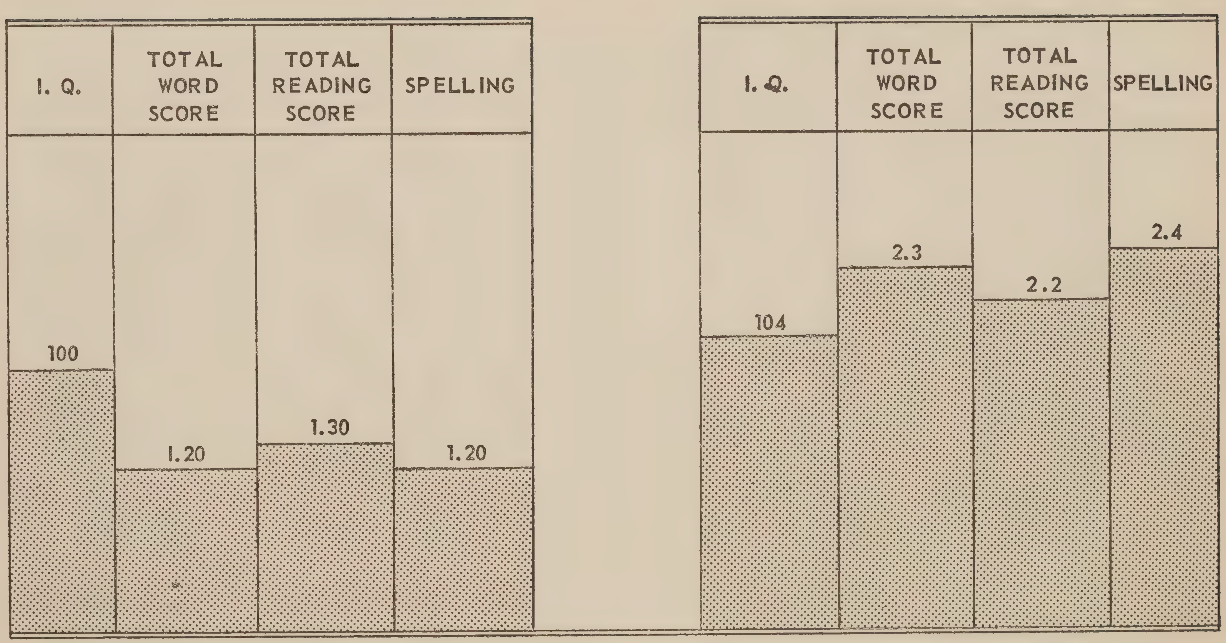
ACHIEVEMENT TEST SCORES OF SIX CLASS MEMBERS

	Word Knowledge	Word Discrimination	Reading Sentences	Reading Stories	Spelling
Mary Kay	1.7	1.5	1.5	1.5	1.5
Gerald H.	1.5	1.5	1.4	1.5	1.5
Ralph M.	1.5	1.3	1.4	1.6	1.4
Jennie May	1.7	1.5	1.4	1.4	1.4
Carla Sue	1.4	1.4	1.4	1.5	1.6
Jimmie L.	1.2	1.2	1.3	1.3	1.2

TABLE II

I.Q. AND TOTAL READING AND SPELLING SCORES OF SIX CLASS MEMBERS

	I. Q.	TOTAL WORD UNDERSTANDING SCORE	TOTAL READING SCORE	SPELLING SCORE
Mary Kay	92	1.60	1.50	1.5
Gerald H.	98	1.50	1.45	1.5
Ralph M.	102	1.40	1.50	1.4
Jennie May	105	1.60	1.40	1.4
Carla Sue	110	1.40	1.45	1.6
Jimmie L.	100	1.20	1.30	1.2



JIMMIE

CLASS MEDIANS

Figure 1

A COMPARISON OF SCORES MADE BY JIMMIE WITH THE MEDIAN SCORE OF HIS CLASS GROUP ON AN ACHIEVEMENT TEST AND I. Q. TEST ing only those incidents that reflect poor school adjustment; nor should they confine their observations to periods when they "have the time" or to occurrence of critical incidents. The behavior journal is an attempt to collect behavior observations chronologically in a variety of situations during prescribed periods of time. Random teacher anecdotes about an individual are much less useful in the development of a case study than a behavior journal.

In the development of a case study, behavioral observations can be grouped with reference to the general purpose of the observations. Although not every entry in the behavior journal can be catalogued as corresponding to a particular phase of the individual case study, when possible it is a good practice to categorize behavior observation. Why are you observing? (1) To obtain general information about the individual, (2) to identify areas in which the individual seems to have problems, (3) to describe precise difficulties, (4) to diagnose difficulties, (5) to plan remediation, or (6) to observe the results of remediation. Behavior observations may relate to one or several of the above categories.

In the observations of Jimmie during a one week period, I had several of the above purposes in mind. I sought to learn more about Jimmie, to identify the problem more clearly, and to describe the reading and spelling problem in terms of his operation in a class setting. Essentially, I was fact-finding prior to diagnosis and remediation; therefore, I decided to concentrate on this phase in my observations.

Monday, 10:00 A.M., Activity: Reading in Groups or Levels

> In the short time that Jimmie has been with us, he has tried many techniques for hiding his inability to read and spell as well as most of my other second graders. In recent days, he has been "feelin' bad," asked permission to go to the restroom far

too often, volunteered to clean up the room after our early morning activity period which precedes reading, and misplaced his book. He is now in my lowest reading group in the morning; a primer gives him a sense of achievement in reading. In the afternoon, I generally have an individualized reading period. During the afternoon, Jimmie pretends to read, never disturbs others, and tries to be as inconspicuous as possible for a seven year old boy.

This morning I worked with Jimmie and Reading Group 3 while the remainder of the class read their Weekly Reader newspaper and some other new material at their level. I concentrated on comparing Jimmie's reading to the other five children in this group. He was extremely nervous just before his turn to read aloud.

As he began to read, he fingered each word. He breathed deeply at the end of each sentence and looked up at me for a cue that he had read enough. I prompted him on many occasions with help on words like "far," "toy," "cook"; he referred jerkily to the picture in the reader, obviously trying to relate pictures to words. The longer he read, the lower his voice became.

At the conclusion of his oral reading, he slumped in his seat, head on his chest. He seemed to be embarrassed over his inability to read; he pretended to follow the reading of others but generally turned his pages too early or too late. I made no mention of anyone's difficulties. Instead I told them that there are so many words to learn and it therefore takes a long time to learn how to read them all.

Tuesday, 1:15 P.M., Activity: Jimmie Privately Reads to Me

During our afternoon reading period, I helped the class get started on individualized reading, then told them that I would ask several members of the class to come to my desk and read briefly with me in a book of their choice. I talked to the class about how every individual walks differently, talks differently, bats a ball differently, and even rides a horse differently, and that the ability to read is far more difficult than either talking or horse-back riding.

As Jimmie came to my desk slowly, I smiled and helped him locate the section of his reader from which he planned to read. I inquired, "Well, Jimmie, how is your horse-back riding?" He grinned and replied, "Swell, Miss Janson. Mr. Jeffrey lets me ride Ole Ike anytime I want." "How about your reading, Jim?" "Heck, you know I can't read good." We began to read in a section of *Good Times With Our Neighbors.* Jimmie grasped the book tightly with both brown hands until the white in his knuckles became pale blue. He approached it as Lincoln might have approached a log. I noticed distinct word to word reading, occasionally two words, never more. Eye movements were jerky. His head bobbed in difficulty as though trying to shake his brain into better activity.

After a few minutes of private reading, I introduced a question about the material—"How long had John lived on the farm?" "All his life," was the reply. "What did his parents grow on the farm?" "Corn and potatoes," he accurately replied, "and cows, too." I moved from the factual to an interpretive question: "Why do you think John liked living on the farm?" This question seemed to relax Jimmie. He thought a minute and his reply reflected his personal approval of farm life.

I suggested that Jimmie read another book, which was entirely about farms. It was a late first grade level book called *Mr. and Mrs. Big.* He took it to his desk with a feeling of confidence. First, he looked at all of the pictures in the entire book. Then, I noticed he placed his chin on a clenched fist and with his finger on the first line he began to read with steady lip movements.

Wednesday, 10:15 A.M., Activity: Group Reading Period

Today I spoke first of the need to help each other in many ways—in case of accidents, in playing, in doing school projects, and in learning to read. Then I arranged our students so that either friends could sit together or readers of varying ability could read in teams. I placed Jimmie with Peter, who was an excellent reader and who had evidenced a real friendship for Jimmie. Peter had visited "Jimmie's farm" and the two seemed to be off to a friendly relationship. In our early morning activity period, Peter had asked to tell the class about Jimmie's horse and about the electric milking process which had fascinated him. Jimmie stood up to explain several minor things about the milking operation which Peter had not described properly and to explain that *all* horses lose their hair when they are brushed.

Jimmie seemed pleased and more at ease in being a reading partner with Peter. I believed that Peter's rather mature reading ability would not be affected adversely in a short period of time by Jimmie's poor reading habits, but that help and support could be reciprocal.

Thursday, 10:00 A.M., Activity: Story Writing

This morning I explained that it would be good to put our reading and writing skills into use by writing a story. Each person could write his own private story or several students could write a story together if they desired. Over half of the individuals in the class chose to work privately. Peter and Jimmie and David decided to work together. This trio retreated, male fashion, to the rear of the room and began to talk excitedly.

After preparing the stories, the individual or a group representative was supposed to read them aloud to the class. I worked around the room talking to individuals, helping in word choice and spelling. Peter wrote down the ideas for his group; Jim and David contributed orally. They decided that Jimmie would read their story to the class when the time came at our afternoon reading period. The story was about a boy who lived on a farm. Jimmie seemed pleased with his task of reading it to the class. I believe that this was chiefly due to the fact that he helped write it.

Thursday, 1:30 P.M., Activity: Jimmie Reads Orally to the Class

Jimmie's turn to read arrived and he marched forward, flinging his paper as he came to the front of the classroom. I noticed that the story was largely printed and that it was on two pages. Holding the paper firmly, he began:

"This story is 'bout a boy named Billy who lived on a big Texas cattle ranch.

Billy lived in Texas
Texas is a Southern state
It is a big state
Billy's dad owned most of Texas
He had many cattle
Some for selling and some for breeding
Billy had a horse, a duck, and one cow
Every morning he fed the duck and every night he gathered eggs for his mother
Billy had two friends who lived in town and he liked both of them
They liked Billy
They came to see Billy on the farm
They had lots of fun those days
Billy left the farm and moved away
He missed his friends
Billy could not write to his friends
So he just stayed at home and played with his new pets."

The class applauded loudly when Jimmie concluded his story. He grinned broadly. For the first time I noted some satisfaction at success in a reading activity. I knew he had memorized the story and that he could not really "read" all the words, but what a start!

Friday, 10:00 A.M., Activity: A Teacher-Made Test in Reading

Each Friday the second grade class takes a short reading and spelling test. During the day I correct the test and each child takes the test home for the weekend. Both students and parents appear to like the Friday test situation.

Below are the test and the spelling list.

NAME ______________________________ DATE ________________________

Underline the two endings that are true in each box.

1.	A red apple could say cluck. could be on a tree. could be round.	A bunny rabbit could hop away. could get sleepy. could fly.	6.
2.	A man's name could be Mr. Brown. could be Mrs. Brown could be Mr. White	A cookie could have nuts in it. could gallop fast. could be brown.	7.
3.	A toy boat could be in a store. could be colored red. could push a wagon.	A big wind could push a door open. could make boats go. could ask you for corn.	8.
4.	A pretty street could have houses on it. could say good-bye. could have trees along it.	A mother robin could be brown and red. could say quack. could live in a nest.	9.
5.	A fine fat hen could be in a store. could be on a farm. could play ball with you.	A merry-go-round could run down a road. could go round and round. could go fast and slow.	10

SPELLING TEST

NAME ____________________ DATE ____________________

DIRECTIONS: I will read each sentence. Please write in the blank the correct spelling of the word I repeat.

1. ___________ (They Thay) went to town.
2. The ___________ (pigg pig) was black and white.
3. Mary was a tall ___________ (gril girl).
4. ___________ (Take Taki) one apple.
5. I ___________ (saw sow) a big black cloud.
6. The ___________ (ball bal) was red.
7. The ___________ (hourse horse) was named Pete.
8. Sue and Jim ___________ (went wint) to school.
9. I ___________ (want went) a drink of water.
10. The boys ___________ (were where) playing baseball.

Jimmie read very slowly and painfully. If, for some reason, he did not have an answer he became distracted by minor classroom noises or events. I made no effort to help him or any class member. He missed six of the reading items (numbers 2, 4, 6, 7, 8, and 10). Most of his errors were obviously the result of an inability to read, although some thought was required after the reading of each item.

In the spelling test of ten words, Jimmie missed items 1, 3, 7, 9, and 10. In the spelling exercise he seemed very unsure of himself; several times he erased to change his work. The test caused Jimmie to retreat inwardly. It was a good week's bad ending. When I returned the corrected papers, he folded his into a tight package and chucked it deeply in his hip pocket. Although he did not know it, he had made the lowest score in our class, and he was obviously bothered by his errors.

Jimmie played around the school-yard about 15 minutes, and I then saw him amble slowly toward home. His mother would meet him on the way, I knew. I wondered about that meeting.

Sociogram

The sociogram should be employed to obtain information that may be helpful in the teaching and learning process. It is not a plaything, and proper guides to its use should be followed. (1) The sociometric choices should be based on a question which involves a real activity in the school. This question should be understood thoroughly by the class group. (2) The results of the sociometric choice should be divulged only to teachers, guidance, and administrative persons. Classmates, especially in the elementary grades, should never examine the completed sociogram profile. (3) Participants should be told that "whenever possible" their choices or rejections will be honored. Occasionally it is beneficial for youngsters to work with persons not of their choice. (4) The sociogram reflects the temporary or tentative opinions of class members on a given question on a precise day. Attitudes and preferences change constantly. (5) The sociogram reports upon only a small part of the social inter-relationships of the classroom. It gives clues but should be carefully geared to all other knowledge which the teacher possesses about the classroom group. (6) Sociograms produce the most reliable and valid results when the individuals involved approve and welcome a confidential expression of personal choice or rejections; otherwise sociograms may present inaccurate, biased results.

After some study of the use of sociograms in the classroom, I constructed a simple statement for my second graders: "We seem to enjoy working in teams in some of our reading assignments. Sometimes we study best when we are teamed with persons with whom we like to study. Please write the name of your first choice study partner on a piece of paper. Now write your name below the person that you chose as your first choice."

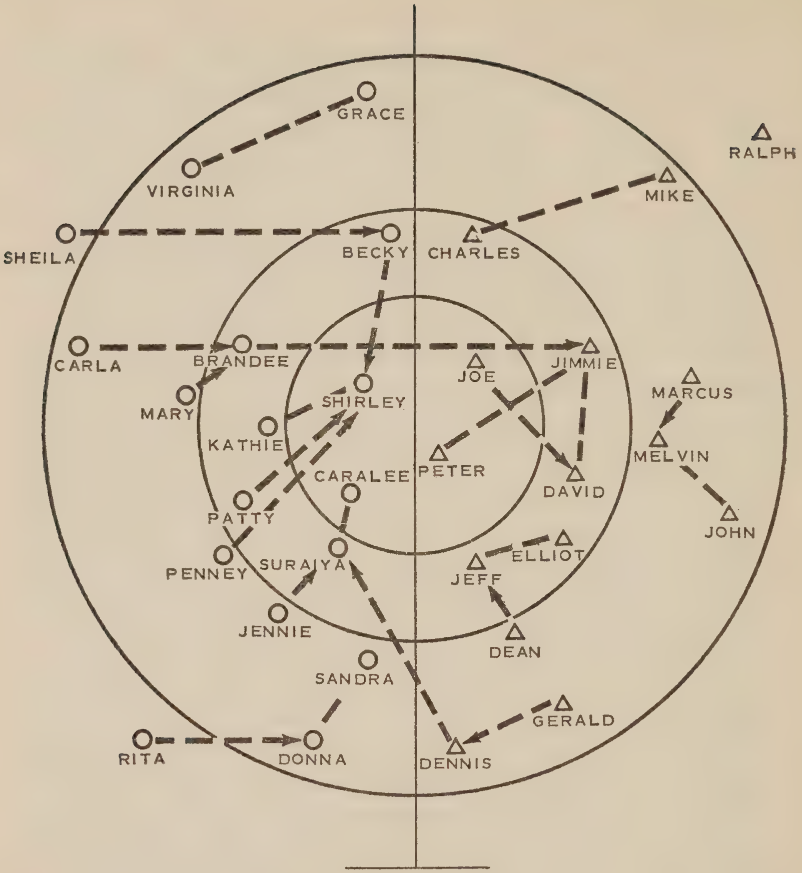
Examination of the resulting sociogram indicates several enlightening conditions in the classroom. Ralph, a boy isolate, chose no one and was chosen by no one. Marcus, Gerald, and Dean and Joe received no first choices. There were four mutual first choices among the boys. Jimmie Little had a mutual first choice with Peter and was chosen by David and Brandee.

The girls shown on the left side of the sociogram are clustered more, which will make the selection of first choice work companions more difficult. Rita, Jennie, Mary, Carla, Sheila, Virginia, Grace, and Patty were not designated as first choices. There were four mutual choices. Shirley was chosen by four girls, Suraiya was chosen by two girls and a boy.

This information enabled me to group most of the individuals according to preference and compatible traits and abilities. The information from the sociogram was added to my insights about the class group and its individuals. I decided to shift the team members every few weeks.

A Personal Interview

I had many chances to talk with Jimmie, both during classes and on the playground. He seemed to like me. I had been successful in maintaining a balance between not seeming to be concerned how he did in school and riding him to achieve. The case study had been conducted in such a manner that neither Jimmie nor his classmates were aware of any special attention other than that which generally is given to a new



SOCIOGRAM PROFILE

Question: *Who is the one classmate with whom you would most like to work in a team assignment in reading?*

Key: ○ = girls

△ = boys

△— —△ = mutual first choices

△— ►△ = one way first choice

Figure 2

SKYVIEW ELEMENTARY SCHOOL, MISS NANCY JANSEN, SECOND GRADE TEACHER student. Now, one of the climactic activities of my month of studying Jimmie was to be a personal interview.

I knew that it should come about casually, and I sensed that it might confirm or reject tentative judgments which I had already made on the basis of other data. For example, I had arrived at the opinion that Jimmie could and would learn to read as well as his peers. Formal remediation or clinical treatment seemed unnecessary in his case. I believed that Jim's health and his personality were the envy of many other parents. I was convinced that frequent absences, change of schools, a meager parental concern for his academic ability, and sketchy basic instruction were the significant causes of his present reading dilemma. The chief purpose of the personal interview was to strengthen further the bond of mutual respect and love which we had for each other and to obtain some further indication of his reading interests in terms of content.

It was a Friday after school. Jimmie's mother was going to drive by the school for him, and she had instructed him to play until she arrived. After the students had made their separate ways home, I walked over near Jimmie, who was playing quietly in the sand. He was landing a small shiny airplane evenly between dream hangers and a rough, sea-like body of water which he had fashioned. As he brought the tiny airplane to a stop, I noted that it was the type generally found in penny gum machines. He seemed a happy boy and grew happier as I sat on the grass a few feet away to observe his play. The following dialogue occurred:

Jimmie: Do you want to play?
Teacher: Yes. Let me be waiting here inside the airport watching you fly. Would you like to fly a real plane when you get bigger?
Jimmie: Not much.

Teacher: Well, what do you want to do?

Jimmie: Oh, I don't know. Maybe drive a truck. Or be a policeman with a motorcycle.

Teacher: That would be real exciting but hard work.

Jimmie: A man's 'sposed to do hard work.

Teacher: What do you want to do during the Christmas vacation and next summer?

Jimmie: Oh, I don't know. Maybe go fishing some.

Teacher: Do you like to fish?

Jimmie: Not so much. But I like to catch bugs.

Teacher: What kinds of bugs do you generally catch?

Jimmie: All kinds—beetles, butterflies, snails, lady bugs, fireflies, catapillars, bees, ants . . .

Teacher: Maybe later in the school year I'll show you how to save and display bugs in boxes or on our bulletin board.

Jimmie: I could bring you more bugs than anybody. Do you want some bugs?

Teacher: Why don't we talk about this project in class and make plans for starting a collection of bugs? We could read stories about bugs to help those children who aren't as acquainted with bugs as you are. And we could print the name of each bug right under the actual bug on our bulletin board.

Jimmie: Bugs don't have names, do they?

Teacher: Not first names, like Jimmie or Peter or Becky, but they have names like butterflies, ants, and wasps.

Jimmie: We could tell the kids which bugs sting or bite, which ones fly and crawl, and which bugs eat other bugs. . . .

A pick-up truck sounded its horn and Jimmie was up on his feet, dusting his pants. I walked over to Mrs. Little and told her how fine a boy she had and how well he was adjusting to school. She said little, but it was evident that she was deeply appreciative.

My case study of Jimmie was formally about to end. As I collected my things from the desk I decided to summarize all of the new facts and insights that I had obtained about Jimmie. Most of the findings had already been permanently stored in my mind, but I decided to study his record completely and record for his permanent file the results of my month-long study of the boy.

Summary of Conclusions and Interpretations

The purpose of this descriptive study was to accumulate and interpret pertinent data about a new student who enrolled late in the fall as a second grader. The study was prompted by the fact that the student seemed to have the mental ability to achieve but for some reason evidenced very low scores on tests and oral classroom work.

The following is a consolidation of the findings of one month of data-gathering which included testing, observation, home visitation, sociometric testing, analysis of class work, and a personal interview.

1. Jimmie's first year of school was interrupted twice by transfer to other schools.
2. His grades were low-average; no further personal information about his school achievement was available.
3. His parents were inclined to "push" him to school but did not help him at home with school work.
4. His health and social development seemed good.
5. Tests indicated an I. Q. of 100; however, achievement scores in reading and spelling were at a low first grade level.
6. His behavior during study and recitation indicated that he was self-conscious about his ability in the language arts. He was a passive class member, yet active on the playground. He seemed to want to "hide" in the class group.
7. Observation and analysis of oral and written work indicated a very limited sight vocabulary and very little ability

to attach words in a systematic manner. Uncertainty marked his oral reading both in the group and in private. Once a story had been read aloud, he exhibited a better than average ability to comprehend, to analyze, and to reflect.

8. He was not eager to improve his performance in class. Improved teacher-pupil rapport, in the later weeks, helped to arrive at situations in which he was eagerly involved.
9. He developed several class friends within a period of two weeks and was "well liked" by most members of the class.
10. In selecting reading partners, two boys and one girl chose him. One boy was a mutual choice.
11. Interviews and informal talks indicated that his content interests were in animals and in machinery. These were identified as possible areas of reading improvement and motivation.
12. Remediation in the areas of general reading skills, word attack, vocabulary improvement, and basic study habits was begun with the realization that creative teaching is sometimes the best type of remediation in the second grade.
13. It was further recognized that Jimmie's reading problem could be best approached through a clear understanding of him and that through patience and skilled assistance his level of reading could be raised during his second year.
14. A series of conferences with his mother seemed necessary so that she could better guide his home study and reading. Inexpensive books were recommended for home reading; others were loaned through the school library.
15. Motivational reading materials at his present reading level were secured by the school chiefly to be used in the afternoon individual reading period.
16. Motivational experiences were planned to involve Jimmie in a growing recognition of his need to read, write, and spell better.

Questions

1. Analyze the teacher's use of the following research techniques: home visitation, behavior journal, testing, the sociogram, and the informal private interview. What evidences do you see of her educational philosophy?
2. How does the study of an individual in the classroom help the teacher develop total group sensitivity and awareness?
3. What facts about Jimmie did the teacher overlook which might add to the case study and to the teacher's ability to help Jimmie?
4. Critically review this case. How could the case be improved? What parts of the case are particularly well prepared? What parts are poorly prepared?

CASE NUMBER II
The Clown in the Class

5.

DISCIPLINE problems at the high-school level are one of the new teacher's most serious challenges. There has been a great deal of postulation as to the causes of behavior problems in high-school students. Some authorities attribute a lack of parental control; others avow that the problem is rooted in the kind of society which America has developed. Another view is that youth, at a transitional age, forced by law to attend school, will rebel and that the problem has merely taken on larger numerical proportion as enrollments in high school have increased. A fourth cause that has been put forth is that there has been little curriculum adaptation to meet the wide variety of academic and vocational needs of students enrolled in our secondary schools. An article on some phase of discipline can be found in almost every issue of your favorite educational periodical.

No national statistics on the subject are available; nevertheless, the problem is quite real. Many administrators in search of teachers look first for good disciplinarians, then hope that these persons will be effective educators. Still other administrators declare that effective teaching is the best preventative of discipline problems.

The following case illustrates how one classroom teacher conducted an individual study of a boy whose behavior had caused him to be labeled a "discipline problem."

Setting: Carl and the Class

Mrs. Hamilton had a problem, a problem she had not encountered in practice teaching. The "problem's" name was Carl Vinson. School records revealed that he was new to Roosevelt High School. He was 16, white, average build; he had two parents, an older brother, and two younger sisters. His I. Q. was 112; he was a sophomore who had failed several courses and finally dropped out of school one year previous. But this was not Carl—at least not what Mrs. Hamilton would say if asked to describe him.

Here is the teacher's oral description:

> Carl is a show-off in class and in most other situations in which school authorities are not present. He is rebellious to the teacher, a physical threat to several boys in the class, a bawdy tease, especially to those girls who are reaching physical maturity. He has no real friends in the class although the class laughs at him. He seeks attention; he lives on attention. Carl has gone beyond the "clown-role." I am somewhat afraid of him. He is moody, retaliatory. But he has a surprisingly good mind, which he seems to dislike using.

"What about his academic ability?" Mrs. Hamilton paused, then said: "He's average in ability but poor in demonstrated achievement. He delights in not doing assignments. Carl's achievement test results, however, place him near the median of my class."

Mrs. Hamilton requested the principal to transfer Carl to another sophomore homeroom. After careful consideration, Mr. Bentley told Mrs. Hamilton that this would merely be relocating the boy and that her class already was the smallest sophomore group in school. He added:

> The counselor and I have talked with Carl several times this year. You are not the only teacher who is concerned about him. Carl regards the counselor and me as people to be very cooperative with. He takes a yielding, pensive, almost benign attitude with us. You may not know this: I've kept it off his school records. Carl is on parole from the boy's training school and should he drop school or should we expel him he will be returned to the reformatory. Let me suggest something. Let's pull together all we know about the boy and collect more facts in order to see if we can help him. I dislike accepting defeat, as I know you do. Could you make an intensive study of the boy? We'll give you every help we can. Don't think of him as a juvenile delinquent. As you develop a case study of him, try to think of him as any other boy or girl that needs special understanding. Consult the counselor freely but do the case study yourself. You see Carl daily and in a variety of situations and are, therefore, in a perfect spot to study him. Suppose I assign one of our seniors to relieve you from freshman study hall duty for a few weeks?

Mrs. Hamilton agreed to conduct an informal study of Carl. She began to study various methods of developing individual case studies. Within a week she had evolved a tentative outline. She was pleased to learn that much of the information needed in such a study was already available in school records. She talked to the head counselor about the study outline and was now ready to begin the data collection.

The Study Outline

I. The Purpose of the Case Study

II. Personal Information
   - A. Date and place of birth
   - B. Present address and phone number
   - C. Race and nationality
   - D. Health

III. Home and Community Background
   - A. Parents' names and occupations
   - B. Educational level of attainment of parents
   - C. Number of children in home; other relatives
   - D. Language spoken
   - E. Occupation and economic status of family
   - F. Church and community affiliations
   - G. Other general items

IV. School Records
   - A. Prior to attendance at Roosevelt High
   - B. Roosevelt High records: Enrollment date, attendance records

V. School Achievement
   - A. Scores on standardized tests
   - B. Grades in subjects completed
   - C. Study habits test
   - D. Teachers' observations of achievement

VI. Co-Curricular Activities
   - A. Participation in athletics
   - B. Organizational membership
   - C. Work experience
   - D. Hobbies, crafts, summer experiences

VII. Critical Incidents of Behavior Deviation
   - A. Interviews with past and present teachers
   - B. Teacher observations
     - 1. Homeroom
     - 2. Other school situations
   - C. Home visitation by teacher

VIII. Tentative Action Steps

The Collection of Evidence

The following information was available from the cumulative record:

Table I

BASIC DATA CONCERNING CARL VINSON

	Name	Date and Place of Birth	Sex	Race
1.	Carl A. Vinson	6/21/44, Chicago, Illinois	M	W

Present Address: 622½ Webster Street; Phone: None

2. Parents' Names and Occupations:
   Father: Jesse Vinson, laborer, carpenter, truck driver
   Mother: Malinda Vinson, housewife and mother

Other Siblings and Their Ages:
Minnie Sue, age 7 years
Carla Rae, age 9 years
Frank Eugene, age 19 years (in armed forces)

Economic Status of Family:
Below average; income is sporadic, evidence of economic deprivation.

Church and Community Affiliation:
No church affiliation; as far as can be determined no community affiliation except the father's membership in the V. F. W.

3. School Records:
   Prior Records:
      Freshman: Ingleside High School, Romine, Illinois
         English I, C—
         General Science, F
         Physical Education, C
         Shop, C

   Records at Roosevelt High School:
      English II, D
      Social Studies, C—
      General Mathematics, C
      Biology, D
      Shop, F
      Physical Education, C
      Business Mathematics, D

Testing

Mrs. Hamilton decided to plot all standardized test scores which were available concerning Carl. She obtained this information from the seventh grade up to the time of her study. After collecting it, she realized that plotting the scores was unnecessary since the tests showed a distinct pattern of median achievement and of 102-112 I. Q. There were no valleys in the test scores, no erratic differences in scores to indicate any significant gain or loss. (Table II presents these data.)

Carl's progressive retardation in achievement test scores and his average I. Q. were somewhat of a mystery. His grades in nearly two years of high school were no accurate measure of his mental ability as reflected in an I. Q. of about 112. Mrs. Hamilton decided to talk to the counselor about this seeming inconsistency. The counselor was interested and helpful but, in essence, he refused to venture an answer to the teacher's question. He said that they did not know enough about Carl to arrive at an objective decision. Mrs. Hamilton then suggested that the head guidance person give Carl a personality test of some kind. He replied that personality tests for 16 year old youngsters were probably of less value than observation, interviews, and behavioral descriptions. He encouraged Mrs. Hamilton to collect careful, objective, specific behavior descriptions and to keep a record of anecdotes relating to Carl. He also agreed to record his summaries of personal conferences with Carl and to make these available for the case study. He suggested that, as these descriptive materials were accumulated, it would be helpful for them to discuss and assay the findings periodically. The counselor requested that Mrs. Hamilton do some reading about aggressive maladjustment. He loaned her

TABLE II

A COMPOSITE OF STANDARDIZED TEST SCORES FOR CARL VINSON FROM SEVENTH GRADE TO SOPHOMORE YEAR

Year	I. Q.	STANFORD ACHIEVEMENT READING SECTION			IOWA EVERY PUPIL TEST			IOWA TESTS OF EDUCATIONAL DEVELOPMENT					Metropolitan Achievement Test	Year
		Compre-hension	Vocab-ulary	Average	Compu-tational	Vocab-ulary	Average	Tests*	1	2	3	4		
Seventh Grade	102	6.4	6.0	6.2	6.8	6.2	6.5							7th
Eighth Grade	no test				7.4	7.0	7.2							8th
Ninth Grade	108 Otis								6.8	7.4	6.9	8.1		9th
Tenth Grade	112												On the 10 test battery Carl had an average achievement of 9.1	10th

* Test I, Understanding of Basic Social Concepts
Test II, General Background in Social Sciences
Test III, Correctness and Appropriateness of Expression
Test IV, Quantitative Thinking

several pieces of material and arranged for a private conference with her to talk about the subject after she had studied the materials.

An Interview Survey of Carl's Co-curricular Activities

Through informal discussion with several faculty members and student leaders, it was learned that Carl's participation in school-related activities was meager. Although he was physically able to participate in competitive sports, he was not on any team. The coach reported that Carl was over-aggressive in intramural sports and that he tended to break game rules at every opportunity. He bluffed his way when he could; when he could not bluff, he would clown and distract others. Teams showed a reluctance to choose him.

Although there were many school clubs, some honorary, some scholastic, others avocational and pre-vocational, Carl was not involved in any of them.

The school guidance department helps students seek part-time and summer employment. Each student is given a card to fill out if he desires such work. There was no request card for Carl. Mrs. Hamilton asked Carl, one day, if he worked anywhere during the school year. His brash reply was: "Hell, my old man don't work half the time so how could I find a job in this crum-town?" Through conferring with the counselor, she found that in the previous summer Carl was at the Boys' Training School at Fort Inbetween.

Since the counselor had visited with Carl several times, Mrs. Hamilton was able to determine that Carl had an interest in old cars. Carl's father would not permit him to drive the family car nor would he let Carl work on the car—except to wash it. Neither Carl nor his father had tools to stimulate an interest in auto mechanics, but on several occasions Carl had told the counselor that having such tools was his biggest desire. He frequently visited a suburban garage where several older boys were rebuilding cars. The librarian indicated that the only magazines Carl read were photo-magazines and auto mechanics periodicals. The shop teacher, on the other hand, reported that Carl seemed to have no interest in auto mechanics and that he was mischievous and sometimes destructive with tools and machines. This teacher had forbade Carl from using the Black and Decker valve grinding machine and the Bear wheel alignment machine. Carl usually left the school ground as soon as school was out. His after-school activities were unknown.

Critical Incidents of Behavior Deviation

In an attempt to collect and record behavior descriptions of Carl, Mrs. Hamilton first talked with Carl's past and present teachers at Roosevelt High. The following quotations were entered in the case study.

Mr. Rigby, Biology teacher:

> Yes, I remember Carl. I'm afraid I didn't have the time to work much with him. At first he really seemed to be interested in biology and in my work. He asked if he could help prepare for some simple demonstration experiment—I forget what—but I remember telling him that it was my practice to use only "A" students for assistants. Toward the end of the course, Carl became really tough to handle. For example, we were studying poisonous plants. I had a few samples that were not to be handled. During class I was called out in the hall for a moment and when I returned Carl was rubbing a leaf between his hands as the other class members sat in awe. I assigned some classwork, took Carl to the school nurse, who scrubbed his hands and arms and treated them. The rest of the day he delighted in scaring the girls by touching them.

Miss Fredericks, English teacher:

Carl was a fairly good student, but he refused to work in class and seldom turned in homework. One crucial incident I recall was one which I did not witness. Several students reported the incident to me. It never received official attention. Carl was caught letting the air out of a boy's bicycle tire. The owner and several others saw him tampering with the air valve, but they were smaller boys and didn't challenge Carl. But when Gene Fowler heard of the incident, he caught Carl just leaving the school-yard. Gene hit Carl. Cut his lip, I think. Carl wouldn't fight although Gene was about his size. Several boys and girls saw this. It surprised them, for Carl had always acted tough.

Mr. Franks, the janitor:

I know a lot about these kids that some of you teachers wouldn't know. The only trouble that I've had this year, except for pranks which I don't mind too much, is with gum in several key holes. I don't know who does it but several teachers blame Carl. I hear that the boy's been in jail, but around me he acts okay. I've got three grown boys of my own who may have gummed a few keyholes.

Mr. Henderson, the shop teacher:

Carl deliberately hides tools from other boys who are working on projects. He broke our valve grinder early this Fall after I had demonstrated its use and cautioned the class about how delicate it was. He said he didn't mean to do it, acted real sorry, but the boys said that he laughed about it after class. I can't have that kind of carelessness with valuable school property. Some of the board members don't think a shop should have anything but 20 hammers and 20 hand saws. I personally told Carl never to touch two of our intricate machines. Yes, I've heard that he's interested in auto mechanics, but he doesn't demonstrate it around here.

Mr. Johansson, the athletic director.

> Frankly, I think that Carl has gone so far in his present behavior that he can't change or the boys would think he had weakened. He's built up a bully front, a no-care exterior, and he has to live with it. I seem to notice once in a while that he honestly would like to compete in basketball. He could be a good ball player, but he usually reverts to the pattern which his peers expect. The boy needs help. He needs it now. A year later may be too late.

Miss Ginger, a counselor who works more with girls than boys:

> I haven't had a counseling session with Carl. My contacts with several of our girls, however, have involved Carl indirectly. Last week Mary Sue came to see me in an emotional state over a situation with Carl. She reported that he followed her around school and sometimes on the way home. Mary seemed afraid of Carl. I questioned her more specifically. She reported that Carl had accused her of misconduct and threatened to tell on her. She was afraid to talk to her parents about the situation. She dates a senior boy and thinks that Carl may have seen her and this boy parked in front of her house. I am watching the developments and have had several talks with Mary. She seems to be a wholesome girl, but Carl can easily upset her by his facial gestures and his remarks. I'm sure she would never go out with Carl. Two other girls have complained about Carl's teasing about love, dating, and sex but these instances have never seemed serious. To my knowledge he dates no Roosevelt High girls.

Several other teachers were contacted but had no critical comments to add. Most of the teachers who knew Carl believed he was "mixed-up" and very hard to motivate, but they were not too concerned about him so long as he did not create disturbances in the classroom.

Carl's Autobiography

Most of the sophomore classes were reading biographies and autobiographies in their English classes. The seniors were writing their own autobiographies as a climax to graduation from high school. Mrs. Hamilton's sophomore homeroom was enthusiastic about the senior autobiographies and wanted to write theirs in English II class. After talking about the value of such autobiographies, the teacher consented. She put on the board the next day a general plan which would serve as a guide for the project. It gave her an opportunity to teach outlining methods. One week was given to complete the project; and except for discussing how to plan the project, the writing was to be done out of class. Carl's autobiography was received on time, and it became a part of his case study file. It read as follows:

> The Autobiography of Carl Vinson
>
> I was born in Chicago on July 6, 1944. When I was born I had a big brother three years old. My parents both worked when I was little, but Mother had two more kids and then quit working.
>
> I've lived in a lot of towns in Illinois, mostly big cities. I also lived in Gary, Indiana. I started to school in Peoria. Dad worked for a contractor that built houses and big buildings. When I was eight, we moved to Rockford. I was there for three years, and then I think we moved to Chicago again.
>
> We lived in Chicago for four years. Times were not so good. Dad didn't work all of the time. He was always getting into trouble and being fired.
>
> I never seemed to have a home and be fixed, like most other kids. That's why my older brother left home to join the Army. Everytime I get home there's trouble with something—either me or Pop or something. Mother just goes to pieces over any-

thing and cries. Even when Pop's not workin' he never stays around home.

When I got into trouble last year, I thought maybe it was a good thing. I kind of liked Fort Inbetween, the boys' training school. They were rough on you, made you get up early, but I made more friends there in three months than I've had in all my life. I don't really have any friends or enemies at Roosevelt High.

The only person that I could be real good friends with is my brother, Frank. He writes to me about once a month and always sends me something on my birthday and at Christmas. Frank will get out of the army in about a year. That'll be the day.

School work has never been hard for me, but I always have trouble doing the things teachers want like they want them. Teachers grade you down if they don't like you.

The main thing I like to do is work around cars. I like to get dirty and it feels good to get your knuckles banged up. Several guys at Taylor's Garage work on their cars in the evening and I go down to watch and learn. We work and talk and smoke and tell stories.

When I get through high school, I'd like to go into the army, and learn to be a mechanic if the jets and rockets haven't taken over. I talked to an army recruiter one day at the post office. He was a big, good-lookin' guy and real glad I was thinkin' about the army. He said I could join in a year with parent's consent, but I'm going to wait and talk to Frank.

Sociometrics

Mrs. Hamilton felt no need for a formal sociogram or intergroup relations test, for it was quite obvious that Carl was outside the group. She turned her attention toward two other sources of data concerning Carl: (1) Her own classroom observations and behavior descriptions, and (2) A possible home visit if it could be arranged.

Teacher Behavior Descriptions During a Two-Week Period

March 6. Carl arrived 20 minutes late to school today. He was cross and irritable to several classmates. Not the clown today, he wanted to be left alone. When one of the boys next to him kept teasing him, he came to my desk, slouched over it, and said he had left a book he had to have first hour in his locker. Sensing his need to be alone, I gave him a hall pass good for ten minutes.

This has been a strange day for Carl. He has been very nice to me. He did his work in English II, and his paper was well done. I saw him near the last period. He smiled faintly as we met in the hall.

March 7. An all high school assembly was held during homeroom and first period. Carl usually vanishes during such programs, but this assembly was devoted to Career Day. In our school Career Day is open to all students. Seniors generally take the day most seriously. The general speaker in the morning session was a well-to-do industrialist who has accomplished more financially than he did academically. I picked Carl out and noted his reaction. He absorbed every word. He concentrated as never before—especially on the subject of how formal education would not insure success but that it contributed to happiness and sound mental health. Later in the day, Carl approached me about the speech. It had left him a lot to think about.

March 8. During English II Carl and another boy spent the hour talking to each other, sometimes whispers and notes, other times they were more disturbing. A girl sitting near him blurted out: "Shut up, you fool!" I stopped to await for silence, which was secured by an icy stare. Carl opened his book; the boy behind him punched him in the back and Carl grunted loudly. Some class members laughed.

March 9. Hardly had I arrived at school today when Carl entered the room. He was clean and neat, hair combed nicely. He put his books on his desk and came to the front of the classroom. "Mrs. Hamilton," he said, "I'm sorry about yesterday in

English. I like you, and you've been good to me but I always get into trouble. Trouble is easy for me." I nodded, smiled, paused, then asked him about the Career Day speaker. He replied that "the guy must have had some breaks." I told him that he might be right but that it would be interesting to *know* instead of guessing. I suggested that Carl might write an English report about this industrialist's career and experiences. I continued: "Of course, this would mean you'd have to interview the man in his office—if he would consent to it. Possibly you could go through his plant some Saturday morning and learn something that way." Carl was interested, but I could tell it was too formidable a task. His conclusion, as members began to arrive, was "Well, let it ride. We'll see."

March 10, Friday morning. During homeroom period, a number of my students were reviewing for a test which was due in another class. About six students were working together. Homeroom atmosphere was relaxed, purposeful; a variety of things were taking place. Carl was busy as his desk. He paid little attention to anyone.

During my lunch hour, Carl entered the faculty room. I knew that he wanted to talk to me so we walked outside. He opened the conversation quickly. "What do you think of this?," he said, as he handed me a letter he had penned. I read it slowly, gathering my thoughts. It was a letter requesting permission to visit with Mr. Douglas A. Cotner, the Career Day speaker. I tried not to act gushy over it and what it seemed to represent. We changed the letter slightly, discussed whether it should be typed or long-hand, and pondered together what kind of impression this would make on the busy receiver. As we parted, I asked Carl to let me know what happened and wished him luck. I believe that this was actually his first serious contact with the relationship between English ability and practical life.

Monday, March 13. Carl still has the tentative letter to Mr. Cotner. He acts as though he may not mail it. I believe he has been teased by some classmates and is also afraid of a negative reply from Mr. Cotner. I did not mention the matter at all. Carl had another meeting with the counselor. I vaguely sensed that he did not mind these appointments, that he actually got satisfaction from them. I talked with the counselor this afternoon and reviewed the case history with him. We sensed that Carl needed a male association that he could trust and develop some healthy association with.

Tuesday, March 14. English II class had a student panel on "Common English Errors." Carl was a panel member but contributed meagerly, acted disinterested. Other panel members ignored him, except when he made his initial comments, which each panel member was asked to do in order to get the topic started.

He played with a key chain and a large match, rubbing the match on the chain, not hard enough to ignite it, but the class was distracted by his antics. I displayed no concern, concentrated on the panel and each person who was contributing.

Wednesday, March 15. Carl reported casually that he had mailed the letter but that he didn't expect anything to come of it. He wanted positive reinforcement. I did not give it.

Friday, March 17. Homeroom was a turmoil. The regional track meet begins this afternoon at 1:30. School is dismissed at noon. Two sophomore boys in our class are on the track team. The girls are at their liveliest and prettiest. Carl is going to the track meet. I guess there has been no news from Mr. Cotner.

Wednesday, March 22. Carl heard from Mr. Cotner. He received an invitation to meet him at his office on Saturday morning. Carl's pleasure was tempered by the uncertainty of how to behave, what to talk about, even what he should wear. Yet I sensed he was on a cloud. Several of the boys asked him about the visit. During homeroom we asked Carl if he would tell the class about his interview after it was over. He seemed pleased that we were interested. His humble attitude had a strange, mixed effect on the class which no one verbalized.

Mrs. Hamilton continued to record behavior observations of Carl and decided to use his impending personal visit with the industrialist as an opportunity to visit Carl's home. Prior to the visit, she conferred with the school counselor. They reviewed the data collected; the counselor talked further to Mrs. Hamilton about his interpretation of Carl's symptomatic behavior. Three men could potentially help Carl greatly: Mr. Johansson, the athletic director; Carl's brother, Frank; and possibly, Mr. Cotner. They decided to invite Mr. Johansson in to review the data and to get some further sign of his personal interest in helping Carl.

The Home Visit

Carl lived in a duplex in an older section of town. When Mrs. Hamilton arrived, Carl's smaller sisters were on the front steps eating popsicles. They were dressed rather poorly. Mrs. Vinson was probably about 50 years old and nearly gray. Her housedress was simple and clean. She was very nervous. The following conversation occurred:

Teacher: I'm as pleased as Carl about his opportunity to meet Mr. Cotner.
Mrs. Vinson: Meet who?
Teacher: Mr. Cotner, the businessman that Carl is going to see Saturday.
Mrs. Vinson: Oh, yes. That's nice, isn't it?
Teacher: Is Carl at home?
Mrs. Vinson: I think so. Maybe in the back yard. He's not in trouble, is he?
Teacher: No, not at all.
Carl: Hi, Mrs. Hamilton.
Teacher: I just stopped in for a minute to tell your mother how pleased I am with your class work during the last few weeks.
Carl: Did I pass the English test?
Teacher: Yes. But I know you can do much better.
Carl: I appreciate the help you've been in talking to me about seeing Cotner, I mean Mr. Cotner.

Teacher: I've enjoyed it. What does your father think of it?

Carl: Well, he. . . .

Mrs. Vinson: Carl's father has been away looking for a new job.

Carl: Yeah, he got fired again.

Mrs. Vinson: Carl! You know that your dad's health is not good and the work was too hard on him.

Teacher: Well, I wish him luck. Carl, keep up your good work. Have a good visit with Mr. Cotner.

Having collected a wide range of observations and evidence about Carl, Mrs. Hamilton decided to confer again with the counselor and to plan further steps which might include the collection of further data and the interpretation of existing data in preparation for certain action.

Tentative Action Steps

By virtue of what the teacher and counselor now knew about Carl, several tentative future steps were planned.

1. Mr. Johansson should be encouraged to develop a personal tie with Carl. This tie should be carefully planned. It should be a short-term experience so that Carl does not lean on the man and so that Johansson realizes he will not be "permanently" time-bound.

2. More information should be obtained about Frank Vinson. In this man may be Carl's best opportunity to adjust his own behavior.

3. Carl should be made aware of the boundaries of behavior which teachers and other adults will accept. He should be accepted and respected when his behavior is within these bounds. As he steps over the bounds of good taste, he should be strongly and constructively corrected. Public discipline, especially of Carl, is to be avoided.

4. Carl's growing respect and trust in Mrs. Hamilton should be nourished. She should gradually demonstrate further respect for and trust in Carl.

5. Carl should be brought to realize that the counselor has helped him greatly and this person is a friend who is trained in working with students.

6. Help should be given Carl in obtaining summer employment. Possibly Mr. Cotner can be interested in helping the boy.

7. The Family Service Bureau of the city or county should be consulted to determine in what ways it can assist Carl's parents.

8. Several key student leaders should be encouraged to understand Carl and help him toward a better adjustment to general school life.

9. Continued counseling for Carl should be scheduled, even during the approaching summer months.

10. Teachers who have class contact with Carl should be informed of his nature, background, and potential.

11. The case study should be continued with lesser stress on data-gathering and more stress on action. The case study file should be left with the head of the guidance department.

12. Members of the faculty who will have daily contact with Carl next year should be encouraged to review this case study and to confer with the counselor or Mrs. Hamilton.

Questions

1. Study the counselor's role in helping to develop this case study. Two things stand out: (A) He offered in-service training to the teacher instead of conducting the case study himself. (B) He readily shared with the teacher the data and insights which he had concerning Carl, demonstrating a close tie between counseling and instruction.
2. Why should teachers conduct individual case studies such as this? What are the disadvantages?

3. Examine and criticize the teacher's behavior descriptions of Carl. How could they be improved? Write several actual behavior descriptions of a student in one of your present classes.
4. What additional data should now be collected about Carl? What research methods and techniques should be employed to gather these data?
5. Criticize the "Action Steps" enumerated in this study.

The Study of Classroom Groups and Sub-groups

6.

A TEACHER "examines" every class group that he teaches—examinations which may range from a casual head-counting to intensive analysis of certain individuals in the group or of the total group.

The need to be aware of the nature, aspirations, potential, and demonstrated achievement of each class group is generally accepted. Individual cumulative records have been used for many years to record such information. However, individual records can become so complex and time consuming that the teacher neglects to evolve a descriptive interpretation of the total classroom group. One might properly add that so much time can be spent in developing and maintaining records of students that there is no time to interpret the recorded information and to adjust the educational program accordingly.

The teacher, at the very pulse of America's educational program, is qualified to collect and interpret a wide variety of data about education and about students. Chiefly, two things prevent his performance of this function: (1) lack of "know-how" in planning for research, (2) lack of time to plan and pursue research projects. Increasingly, teachers are learning how to conduct research which is related to their teaching task. Unfortunately, a "free period" is still generally frowned upon by the public as a flaw in the administrator's scheduling of classes. The immense task of educating the lay public in this matter falls largely to the nation's enlightened lay leaders and able administrators; but teachers, too, have a continual obligation to demonstrate that research is the marriage partner of teaching and hence, that some portion of the teacher's school day should be devoted to research activity.

The Values of Teacher Research on the Classroom Group

One of the chief values of researching a classroom group is that such research impresses on the mind of the teacher an indelible portrait of the nature of the group and of the individuals in it. Increasingly, effective teachers strive to teach individuals as they are able and ready to learn. Research can give many clues to group interest, level of achievement and learning potential. A recognition of the importance of the nature of the individual and his group is reflected in the growing use of standardized tests of mental ability and subject matter achievement, but the use of such tests is only one avenue toward improved group descriptions. Other measures are always needed.

Second, planning and conducting a research study of a classroom group or sub-group is a research opportunity directly related to classroom instruction. Teachers and administrators seldom have sufficient time to conduct research which has no immediate and direct relationship to their jobs. The desire for a research experience can be satisfied through descriptive studies of classroom groups or through experimental studies of classroom groups as they are engaged in school projects or units of study.

Third, a research understanding of the classroom group promotes better teaching. The teacher who assesses his class by intuition, application of knowledge of previous classes, or even by a haphazard perusal of cumulative records is prone to error. Teaching and learning aids, such as supplemental reading materials and multi-sensory equipment, are of slight value if the teacher is uninformed as to the nature of the classroom group.

Fourth, such research focuses needed attention on learners, not on textbooks, devices, tricks, or gimmicks. Sometimes we leave the human clay shapeless as we mold excellent teaching units or courses of study. Early awareness of the nature of each group is a prerequisite to effective teaching.

Fifth, the process of descriptive research on the nature of the classroom group helps to develop a broad conception of what research really is and how it can serve the teacher. Too long teachers have viewed research narrowly; they have either divorced it from the teaching process or have deposited it on the door-step of specialists, believing that research should have more theoretical parents.

Last, the study of groups within the school is an opportunity to weave elemental research processes into the total fabric of the school. A school should be guided by what research has tentatively found to be true. Its curricular program, its physical plant, the preparation of its faculty, even the length of the school day—all are affected by the findings of research. Generally speaking, the local school in a given community employs research findings but places little stress on conducting research which might add to that large and encompassing fund of knowledge about teaching and learning. The development of research skills is basically dependent on the opportunity to exercise the research function.

What Should the Teacher Know About the Class Group?

There are certain minimum essentials which the teacher should know about each class group. As a specific research study is planned, these essentials form the foundation for more detailed information which may be needed in the study of a group. The following are essential facts for the teacher who would conduct descriptive research about his class:

1. Chronological ages in years and months: Distribution and ranges of ages
2. Sex
3. I. Q. or Mental Ability: Distribution and range
4. Mental age
5. Physical and mental health facts related to learning ability
6. Achievement levels
7. Home and family environment
8. Past school records
9. Psychological characteristics and emotional patterns of individuals
10. Inter-group association patterns among classmates
11. An objective description of how the group behaves or operates: An integrative look at the class group

As a specific study is planned, more definitive information may be needed. The next two cases illustrate the need for detailed, relevant facts and opinions.

Research Methods and Techniques

Certain of the research methods and techniques applicable to the study of individuals are also useful in the study of classroom groups. Many of the following methods and techniques are employed in the two cases which conclude this portion of the book:

Group observation
Anecdotal records of group activity
Analysis of school records
Group tests: Standardized and teacher-made
Sociometric techniques
Role-play
Questionnaires
Opinionnaires
Group interview
Group self-study
Project involvement
Small group conferences
Discussographs

In Case III a teacher studied a group of "rapid learners" that he was preparing to teach as an experiment in his high school. In Case IV a teacher conducted a study of two methods of grouping students for committee and project work. Note that there are several efficient ways to study each educational problem. No outline or plan is sacred.

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CASE NUMBER III

A Descriptive Study of a Group of Eighteen "Rapid Learners" in Crestview High School, Grades 11 and 12

7.

ABILITY grouping in the senior high school has many advantages and some disadvantages. In terms of the instructional process alone, ability grouping of rapid learners in the senior high school is regarded as one good way to challenge those students who excel academically. Americans, in and out of the education profession, are well aware that typical one-way high schools dull the intellectual appetite of many rapid learners.

The importance of this upper scale of exceptional children and youth has been stressed by many organizations and groups. The topic has been broached in Congress; millions of dollars for research, provided by private and governmental grants, have been spent to study singular aspects of the problem. National and state education associations and local P. T. A.'s ponder what can be done to conserve the estimated three percent of our school population who are highly gifted and the ten to twenty percent who are academically talented.[1]

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[1] James B. Conant, *The American High School Today*. New York: McGraw-Hill Book Company, Inc., 1959, pp. 57-63.

Setting

All too often the identification of rapid learners is made arbitrarily on the basis of I. Q. alone. Crestview High School developed the following pattern for identifying its more academically able students: (1) All students with I. Q.'s of 120 or above were listed. (2) Each student's scores on various achievement tests were recorded on the tentative list of "rapid learners." (3) Each student's school records were studied and a grade point average was computed. (4) The guidance officer studied the total cumulative record of all students on the tentative list. (5) Teachers were asked to contribute their judgments concerning the mental ability of each student on the list with whom they were acquainted. (6) A committee of three persons (the high school principal, a counselor, and a teacher) made the final selection of students on the basis of the criteria mentioned above. (7) Students who were eligible for two special classes in Math and Science were notified and given the opportunity to pre-register if they desired to take the classes. Of the 22 who were eligible, 18 indicated a desire to participate. *Teaching Rapid and Slow Learners in High School* was a valuable resource in arriving at these screening indexes.[2]

The combined use of these indexes produced a list of 18 rapid learners at Crestview High School. The total pupil population of the high school was 510.

The Problem

The identification and grouping of rapid learners was the first step toward providing ability grouping instruction for these pupils. A teacher, aware of how such selection was made, may read the names of the students and simultaneously examine the available facts about each student. However, the teacher of such a group of students needs to know a great deal more about these individuals and about the group than was known when such selection was made.

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[2] Arno Jewitt and J. Dan Hull (Coordinators), Bulletin 1954, Number 5, U. S. Department of Health, Education, and Welfare, Office of Education, 97 pp.

The problem of this study was to develop a detailed description of this group of students as a prelude to the year's instruction. The purpose of such a description was to improve the teacher's ability to work with this group. The study was predicated on the belief that such knowledge about the classroom group and individuals in it enhances instruction—if the findings are interpreted and action steps taken to plan for instruction.

The Tentative Outline of Descriptive Information Desired

I. Physical Characteristics of Class Members
    A. Age
    B. Sex
    C. Health facts related to learning
II. Activities of Class Members
    A. In-school group associations
    B. Out-school social activities
    C. Avocational interests
III. Mental Characteristics of the Group
    A. Academic aptitude
    B. Achievement test scores
    C. Grade point average
    D. Teacher judgments
    E. Library usage Test
IV. Home and Family Characteristics
    A. Occupation of each parent
    B. Age of parents
    C. Educational attainment of parents

D. Number of ages of other siblings
E. Parental aspirations for the student
F. Economic strata
G. Availability of learning resources in the home
H. Academic and vocational guidance given by parents

General Characteristics of the Mathematics and Science Classes

While it was not the purpose of this study to describe in detail the educational program of these 18 students, it seemed important to list tentative characteristics of the two new experimental classes in Mathematics and Science.

The following plans were made for the instructional program:

1. To offer the mathematics and science courses consecutively with a 15 minute break in between. Each class was scheduled for 80 minutes, although the timing was flexible.
2. To have both classes meet in the homeroom of the teacher.
3. To schedule the classes during the morning.
4. To employ the project method or problems approach to a large extent.
5. To develop the specific content of the courses through class discussion from a broad "framework outline" which the teacher will provide.
6. To make use of small group projects, problems, and experiments as recommended by the students.
7. To encourage student participation in the teaching activity.
8. To invite resource persons from the community to visit the class.
9. To organize and equip the classroom as a mathematics and science laboratory in appearance and in usage.
10. To enable students to use the classroom after school hours and possibly in the evening.
11. To encourage students to purchase, bring from their homes, or borrow a wide variety of mathematics and science tools

and instruments which will be properly housed in the classroom.

12. To assist students in the construction of laboratory apparatus, and scale models of projects.
13. To reduce the teacher's load from six periods to four periods. He was to teach the "rapid learner" mathematics and science courses in the morning plus two regular mathematics and science courses in the afternoon.
14. To encourage the teacher to play more of a guidance role than some other classroom teachers in the system, in order to relate guidance to instruction.
15. To group juniors and seniors together for both the mathematics and science classes.
16. To make homework assignments in large blocks, around major principles or problems studied.
17. To encourage creative investigation; commonly assigned tasks of a routine nature were to be minimized.
18. To instill competitiveness among students but not in terms of tests or final grades.
19. To create an atmosphere for effective student self-discipline.
20. To enable the teacher to develop a continuous and personal friendship with many parents of class members.
21. To give students class experiences which offer them a view of teaching as a professional career.
22. To invite student-teacher-parent participation in the classes.
23. To encourage the students to participate in a wide range of community speaking and demonstration activities.
24. To present a public Mathematics and Science Fair as a climax activity to the semester.

The Accumulation of Data

Physical Characteristics

The accumulation of certain physical characteristics of individuals in the class was an easy task. The individual records of each student contained basic information. Table I provides a

Table I

PHYSICAL CHARACTERISTICS OF 18 RAPID LEARNERS IN CRESTVIEW HIGH SCHOOL, GRADES 11 AND 12

Name	Age Yrs.:Mo.	Sex	Health Items
1. Arenson, Weldon	16: 4	M	None
2. Bimson, Jane	17: 2	F	None
3. Bunty, Joseph	17: 8	M	None
4. Clinton, Wayne	17: 6	M	Very nearsighted; wears corrected glasses. Likes to engage in sports; injured twice on playground.
5. Dennison, John	16: 5	M	None
6. Evans, Patricia	16:10	F	21 pounds overweight; sensitive about condition; withdrawn personality.
7. Enlow, Mariette	17: 0	F	None
8. French, James	17:11	M	None
9. Gainsforth, William	17: 8	M	None
10. Gentry, Pinky	18: 1	F	None
11. Henry, John	16: 9	M	None
12. Iverson, Claudia	17: 2	F	None
13. Keltner, Frank	16: 8	M	A hearing loss; Frank will generally adjust himself if teacher permits free seating, etc.
14. Manson, Ira	17: 1	M	None
15. Owens, Allen	16: 1	M	Small boy; slight build; slow physical maturity.
16. Prescott, J. B.	16: 6	M	None
17. Rathgen, Robert	17: 3	M	Counselor revealed several emotional problems, possibly related to broken home; only child. Involved in some minor school infractions.
18. Smithson, Wylma	16: 5	F	None

Table II

A TABULAR SUMMARY OF THE GROUP ACTIVITY INVOLVEMENT AND AVOCATIONAL INTERESTS OF A CLASS OF 18 RAPID LEARNERS

Name	In-School * Activities	Out-Of-School ** Activities	Avocational ** Interests
1. Arenson, Weldon	Debate Club member; Key Club; Honor Society	Eagle Scout; help with Cub Scouts	Minerology, camping
2. Bimson, Jane	Girls Basketball; Girls Athletic Assoc.; Future Homemakers of America	All girls chorus	Supervisor, Summer playground for preschoolers
3. Bunty, Joseph	Honor Society President; Basketball team; Letterman's Club	Work in drugstore; help pharmacist	Dancing
4. Clinton, Wayne	Baseball team; Letterman's Club; Future Farmers of America	County F. F. A. Board; Summer, softball team	Livestock breeding; carpentry; help coach Little League
5. Dennison, John	Quill and Scroll, President; Spanish Club; Honor Society	None listed	Creative writing; collecting poetry and old ballads
6. Evans, Patricia	None	Helps in church school, First Methodist Church	None listed
7. Enlow, Mariette	Future Homemakers; Honor Society; Debate Club	Junior Homemakers Club; Church youth group; church choir	None listed

8. French, James	Science Club	None listed	Rebuilding 1935 Ford; all kinds of shop work
9. Gainsforth, William	Football team; Industrial Arts Club	Follow baseball games	Working in father's contracting business
10. Gentry, Pinky	Future Teachers of America; Honor Society; Science Club	Church choir; Wesley Fellowship	Swimming; tennis; the opposite sex
11. Henry, John	Tri Hi Y; Honor Society	On Teen-Council	Raise birds
12. Iverson, Claudia	Girls Athletic Assoc.; Spanish Club; Honor Society	Square Dance Club; church school	Swimming; dancing
13. Keltner, Frank	Art Club; Honor Society	None listed	Painting and drawing
14. Manson, Ira	Key Club; Student Council, President; Debate Team	Church youth fellowship	Plays piano well
15. Owens, Allen	Honor Society; Science Club; Industrial Arts Club	Repair appliances and do electrical work, when possible	Electrical experimenting
16. Prescott, J. B.	Future Farmers of America, President; member, Student Council	Rodeo Club, Square Dance Club	Hunting, fishing, archery, taxidermy
17. Rathgen, Robert	None	None listed	None listed
18. Smithson, Wylma	Future Teachers of America; Tri Hi Y; Drama Club	Teacher-assistant, Kindergarten, Baptist Church	Movies, summer theater, modeling

* Information obtained from guidance department

** Information obtained from student questionnaire group view of the class. The average age of the class was 17.0 years; five members have health conditions which the teacher was able to take into account in the instructional program.

Activities of Class Members

No standardized personality tests were administered. The group activities of the class were surveyed by studying three areas of contact: (1) In-school group activities, (2) Out-of-school social activities, and (3) Avocational interests.

The director of student activities (who was a part-time counselor) helped in identifying group social contacts which class members had during school hours. The teacher-researcher developed a questionnaire to determine the out-of-school activities of class members. This instrument was introduced as a way for the teacher to become better informed about each individual in the class. The questionnaire also sought the avocational interests of students. Table II contains a summary of these facts,

Mental Characteristics of the Group

Four indices of academic ability were determined in this study. These were: (1) I. Q., (2) Grade point average, (3) Achievement test scores, (4) The Bennett Use of Library Test.[3] The range of academic aptitude for this class was from 126 to 171; the median was 142.0. The median grade point average for the class was 3.75; three of the 18 students had a perfect "A" record for all high school work. Achievement scores are recorded for the teacher's use in studying individuals. Table III presents these scores. In the belief that these students

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[3] *Bennett Use of Library Test,* Bureau of Educational Measurements, Kansas State Teachers College, Emporia, Kansas.

TABLE III

ACADEMIC CHARACTERISTICS OF A CLASS OF 18 RAPID LEARNERS, GRADES 11 AND 12

	ACADEMIC APTITUDE[1]	ACHIEVEMENT BATTERY[2]			GRADE POINT AVERAGE[3]	LIBRARY USAGE TEST[4]
		ADV. READING	ADV. MATH	ADV. LANGUAGE		
1. Arenson, Weldon	138	96	99	92	3.6	90
2. Bimson, Jane	126	96	88	94	3.6	90
3. Bunty, Joseph	156	94	99	89	4.0	85
4. Clinton, Wayne	130	92	90	85	3.6	90
5. Dennison, John	142	99	86	99	3.8	99
6. Evans, Patricia	160	96	90	98	4.0	95
7. Enlow, Mariette	135	94	76	96	3.6	85
8. French, James	140	90	98	89	3.8	95
9. Gainsforth, William	132	90	97	92	3.8	90
10. Gentry, Pinky	145	94	85	92	3.8	65
11. Henry, John	138	91	94	90	3.8	85
12. Iverson, Claudia	131	96	90	98	3.6	90
13. Keltner, Frank	146	90	92	94	3.8	90
14. Manson, Ira	151	99	89	99	3.6	95
15. Owens, Allen	171	96	99	95	4.0	90
16. Prescott, J. B.	139	89	90	92	3.8	85
17. Rathgen, Robert	145	95	65	85	3.5	55
18. Smithson, Wylma	136	86	85	94	3.8	80

[1] Scores were averaged on two or more I. Q. tests which were on record for each individual.

[2] Percentile norms for beginning twelfth grade students on the California Advancement Test, Advanced Battery, Form AA.

[3] The number 4.0 represents a perfect "A" academic record.

[4] Percentiles on the Bennett Use of Library Test.

would make increasing use of libraries, both in high school and in college, the Bennett Use of Library Test was given. The range of scores on this test was greater than on academic ability or achievement tests. The range, in percentiles, was from 55 to 99. Two of the students scored much lower than was expected, indicating a valuable teacher-lead to future individual and small group instruction. The median percentile on Bennett's test was 90.

Further internal analysis of Table III is necessary for the teacher who conducted this study, and for readers who desire to study correlations between measuring instruments or to examine the mental characteristics of a single student in the class. Such a table has continuous value to the teacher as a reference point throughout the school year.

Home and Family Characteristics

Several basic facts about each student's family and home were gathered. The parents had an average age of 39.6 years. Parents' occupations varied greatly, as can be noted in Table IV. With regard to the educational attainment of parents, the following facts are significant: (1) Ten of the 18 fathers had at least a bachelor's degree. (2) Eight mothers had completed college. (3) Three of the mothers reported completion of two years of college.

Three of the 18 mothers were employed full-time outside the home. All of the fathers were full-time employed. There was an average of nearly three children in each family—2.94.

Students of this case might desire to inspect the relationship between high I. Q. students and the level of educational attainment of their parents, or other such relationships. Generalizations, however, should be avoided due to the small number of cases involved in this study.

TABLE IV

FAMILY AND HOME BACKGROUND OF A CLASS OF 18 RAPID LEARNERS, GRADES 11 AND 12

STUDENT'S FIRST NAME	OCCUPATION OF PARENT (FATHER AND MOTHER)	AGE OF PARENTS	PARENTS' EDUCATIONAL ATTAINMENT	Is Mother Employed Full-Time Outside the Home?	Total Number of Children in Family
1. Weldon	F Engineer	41	B. S.	No	2
	M Former Nurse	39	B. S.		
2. Jane	F Teacher	44	M. A.	No	3
	M Housewife	40	2 years college		
3. Joseph	F Businessman	46	B. S.	No	4
	M Housewife	39	B. A.		
4. Wayne	F Farmer	39	H. S.	No	3
	M Housewife	39	H. S.		
5. John	F Office Worker	40	H. S.	Yes	2
	M Teacher	36	B. A.		
6. Patricia	F Carpenter	42	H. S.	No	2
	M Housewife	40	2 years college		
7. Mariette	F Rancher	41	B. S.	No	3
	M Housewife	40	B. S.		
8. James	F M. D.	45	M. D.	Yes	2
	M Nurse	39	R. N.		
9. William	F Contractor	45	H. S.	No	5
	M Housewife	42	H. S.		
10. Pinky	F Salesman	38	H. S.	No	2
	M Housewife	36	H. S.		
11. John	F Recreation Director	40	M. A.	Yes	1
	M Secretary	36	B. A.		
12. Claudia	F Bank Teller	38	B. A.	No	4
	M Housewife	37	H. S.		
13. Frank	F Photographer	40	B. A.	No	4
	M Housewife	40	H. S.		
14. Ira	F Auto Mechanic	40	H. S.	Part time	3
	M Church Organist	35	2 years college		
15. Allen	F Engineer	40	M. A.	No	4
	M Housewife	36	B. A.		
16. J. B.	F Farmer	35	H. S.	No	3
	M Housewife	35	H. S.		
17. Robert	F Mortician	46	B. A.	No	1
	M Housewife	44	H. A.		
18. Wylma	F Salesman	39	2 years college	No	5
	M Teacher	34	B. A.		

In order to obtain further information about the home and family of these students, a simple five-point scale questionnaire was devised by the teacher-researcher. Students responded to the instrument by checking a "descriptive word response" and also by explaining their response. (See "A Student Questionnaire"). With regard to Question 1, "Do your parents urge you to apply yourself academically . . . ?" the following reactions were made: "Always"—two students; "Often"—thirteen students; and "Occasionally"—three students. Reactions to Question 2, about parental guidance in academic work, were: "Often"—twelve students; "Occasionally"—four students; and "Seldom"—two students.

Concerning Question 3, "Do parents offer vocational guidance . . . ?," the following student reactions were reported: "Always"—2; "Often"—8; "Occasionally"—6; and "Seldom"—2. The teacher wanted to gain some knowledge about learning materials in the home. Question 4 reactions were: "Enough available materials"—6; "Some materials in the home"—8; and "Very limited learning materials in the home"—4. Narrative replies to this question were both revealing and helpful to the teacher: "Dad tries to buy me books, but he doesn't ask me what I would like. I wish he would let me spend the same money on things I need to know." "We subscribe to *every* popular magazine. We could go into the magazine business! But most of the material is superficial; it is written for seventh grade adults who are madly in love, or have lost their jobs after having worked for the company eight years, or are tempted morally to pull strings instead of realistically facing life problems." "Dad just keeps buying me that hobby stuff that I used to play with, but I hate to tell him about it. He means well." "Good books, especially reference and basic works, are too

A STUDENT QUESTIONNAIRE

The purpose of these questions is to provide your teacher with a further understanding of each student in the "Rapid Learner" class. The information is for the teacher's use *only*. Check nearest the word which best fits your reaction and then explain your reaction carefully.

1. Do your parents urge you to apply yourself academically in order to equip yourself for a skilled or professional career?

1	2	3	4	5
Never	Seldom	Occasionally	Often	Always

Please explain:

2. Do your parents offer practical guidance in your academic work in high school?

1	2	3	4	5
Never	Seldom	Occasionally	Often	Always

Please explain:

3. Do your parents offer vocational guidance to help you arrive at a life work?

1	2	3	4	5
Never	Seldom	Occasionally	Often	Always

Please explain:

4. Do you have learning materials, such as books, tools, instruments, encyclopedias, and professional magazines, in your home?

1	2	3	4	5
No	Very Limited	Some	Enough	Plentiful

Please explain:

5. How much will your family be able to provide financially for your higher education?

1	2	3	4	5
None	A Small Portion	Pay Room And Board	All, Except Social Expenses	All

Please explain:

expensive for our family blood; I'd do without food, though, to own a few of them in my field."

Question 5, "How much will your family be able to provide financially for your higher education?," was answered in this manner: "All—2; "All, except social expenses"—3; "Pay room and board"—5; and "A small portion"—8. The teacher received the following comments: "That's why Mother decided to go back to work this year." "Dad's company is going to give me a part-time job while I'm in college. I have a letter from the president to that effect." "I guess I'll go to college, but I don't want a career other than a happy marriage. I sometimes get the feeling that mother thinks I'm buggy for not wanting to pursue medicine or microbiology, but I think that marriage is a first-rate profession."

Curricular Implications

It is assumed that the accumulation of descriptive information about this class group will enable the teacher to work effectively with the class. The data-gathering process is educative for the teacher. However, much like the implementation of other research findings, the value of this research depends greatly on what the teacher does with the information collected. If the data obtained are not applied directly, the value of the study is questionable. If the data are loosely nailed to some weak framework of intention, they are likewise of limited value. It is necessary to convert facts into whole ideas, plans, and action steps. The present section of this book is chiefly concerned with illustrating the nature of research as applied to the study of classroom groups. However, some general guidelines for implementation should be developed briefly as suggestions for students of this case.

What are some of the curricular implications of this study of a rapid learner group? These implications can be grouped into three categories: (1) Instructional implications, (2) Testing and evaluation implications, and (3) Teacher counseling and guidance implications.

Instructional Implications

(1) A stress should be placed on individualized instruction and small group teaching; (2) Library skills should be developed, especially by those students who scored lower than teacher expectations; the teacher should develop student independence in the use of resources; (3) The problems or project approach will be very useful; (4) Flexible seating and freedom for various activities will be necessary; (5) The research approach to problems should be stressed; (6) Inter-personal relationships among classmates should be determined; (7) Individual student objectives for the semester should be planned; (8) Democratic classroom planning of the academic program will be valuable; (9) The curriculum should be flexible so that student needs and interests can be honored.

Testing and Evaluation Implications

(1) The teacher may need to develop a special evaluation approach for this class. The typical A, B, C grading system may not be appropriate, although school regulations may demand such a letter grade; (2) Group evaluation might be effectively employed; (3) Private student evaluation conferences may be appropriate; self-evaluation should be guided; (4) Achievement tests which accurately measure upper ranges should be sought.

Teacher Counseling and Guidance Implications

(1) The teacher should encourage certain students to take vocational aptitude tests and to confer with school and com-

munity vocational counselors; (2) The teacher should investigate the college scholarship possibilities for certain students and offer assistance where it is desired; (3) The teacher should introduce the subject of careers into the mathematics and science courses by inviting specialized career representatives to meet with the students. Such persons might serve as occasional teachers or resource persons in order to bring about career insights; (4) Pre-college curricular guidance in the mathematics and science fields could be provided by the teacher; (5) A healthy relationship between the physical sciences, the fine arts, and general education should be instilled; (6) The development of a philosophy of life and work can be a vital business for such students.

Areas of Further Study

What further curricular implications are evident? A descriptive study of a classroom group never really is concluded. Formally and informally the effective teacher adds daily to the knowledge he possesses about a class group. Likewise, there are few pat implications and conclusions which can be phrased to satisfy formal research demands. This case was conducted in a compressed time, prior to the opening of the school year; of necessity, the case must be continued, records carefully compiled, new data sought. Many interpretations of the data must be made as the teacher plans to work with the class, individual students in it, and the curriculum which is the unifying force of the teacher and his students.

A good many studies in education do not end; they are brought to a conclusion synthetically, out of physical necessity.

What are some continuing areas of concern which could engage the teacher-researcher in this case? *First,* the important emotional nature of the learners has not been touched. Students such as these may have unusual emotional adjustments to make. The single area of "concepts of self" presents further possibility for investigation and understanding, though it is a difficult aspect of study for many classroom teachers. *Second,* action research involving small group conferences of these students and their teacher and built around the necessity for curriculum adaptation would certainly be a significant additional research step. *Third,* experiments in grouping within this class would be valuable research. *Fourth,* a separate study derived from this general survey of the nature of the class group could be conducted concerning the involvement of community resource leaders in instruction.

QUESTIONS

1. Why do teachers often neglect to study classroom groups? What can be done about this?
2. On the basis of information given in the beginning of this study, make a survey of possible tests of academic ability and achievement which would be appropriate to describe individuals in this group. Consult several reference and other resource books.
3. What aspects of the study of this group have been neglected which seem important to you?
4. Discuss in detail the curricular implications of this study. Some clues are provided in the case. Translate these and other clues into specific teaching plans.

CASE NUMBER IV

An Experimental Study of the Achievement in American Government of Paired Groups of Twelfth Grade Students Involved in Two Methods of Grouping for Committee Work

8.

MR. ELLIOT has been a teacher in the Mountain City High School for the past three years. During a previous school year, he taught two eleventh-grade American history sections; in the coming school year, he is to teach an American government course composed entirely of students whom he had taught in American history the year before.

In his pre-planning for this class in American government, Mr. Elliot was delighted with the prospects of teaching a group of twenty-four seniors who were already well-grounded in the procedures of teacher-pupil planning, group processes, and the problem-centered approach. Elliot had long ago abandoned the idea that the content of social studies had an intrinsic value as part of the social heritage and that the mastery of this content by students was the *sine qua non* of a social studies program. He was thinking of this course in American government, which he would rather have entitled, "Problems of Democracy," as composed of meaningful experiences in group living through which his students would not only acquire functional knowledge and skills, but would develop skill in human relationships and capitalize on the potentialities of group processes for changing attitudes and values. He hoped further that the class would develop and maintain an interest in class work and continuous achievement, that they would acquire a willingness to help plan their own learning and develop the skills of purposeful group direction, cooperation, problem-solving, and self-evaluation.

Last year, in his American history sections, Mr. Elliot had rather successfully used the problem-centered-group-process approach; however, in the class evaluations there was a doubt relative to the efficacy of a number of the class committees which engaged in varied group activities. He wondered if some of these small groups might have accomplished more if they had been more scientifically formed rather than the result of free student choice.

Would it be possible, he wondered, to divide this new class of twenty-four students into two paired groups; in one, assign study and activity committees by certain criteria, and in the other use last year's method of free student choice without teacher guidance? Inasmuch as Mr. Elliot was planning to administer John Haefner's *Cooperative Test in American Government* [1] at the beginning and at the end of the course to test the students' growth in concepts usually taught in American Government courses, he thought that it might be valuable to compare the achievement and performance of committees formed by these two different methods of grouping. In such an experiment the method of grouping would be the variable.

Mr. Elliot presented his plan to his principal, Dr. Lane, who endorsed the idea wholeheartedly and agreed to confer with him from time to time on the development of his plan for the experiment. Dr. Lane asked Elliot if he would prepare a written report of his experiment and then lead a discussion of the project during a future staff meeting.

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[1] Cooperative Test Division, Educational Testing Service, Princeton, New Jersey.

The Problem

It was the problem of this study to determine the following:

1. What is the relative growth in concepts usually taught in American Government, as measured by Haefner's *Cooperative American Government Test,* between paired groups of twelfth-grade students? Group I (12 students) was grouped on the basis of five selected teacher criteria, and Group II (12 students) was grouped by free student choice. All committee groups had four members.

2. What is the relative growth in evidences of group and individual responsibility, reflective thinking, cooperative action, and social concern, as observed by the teacher, in these same two paired groups of students?

The Experimental Plan

1. Students involved in the study were 24 members of one American Government (twelfth grade) class in the Mountain City High School.

2. Students in the class differed considerably in scholastic aptitude, subject matter achievement, chronological age, and experiential background, as can be noted in Table I.

3. During the first week of the semester, these students were administered Haefner's *Cooperative American Government Test,* Form X, to measure, before engaging in any class activities, their acquisition of concepts usually taught in American government classes.

4. The 24 students of the class were then paired into two

groups of 12 members each. The matching of these two groups is described under the heading "Matching the Two Groups."

5. Group I was divided into three study-activity committees of four members each, according to the five criteria which are discussed in the section "Methods of Grouping."

6. Group II was divided into three study-activity committees of four members each by free student choice with no teacher guidance.

7. The entire class, with the teacher as the leader, formulated the problems to be studied during the eighteen week semester. It was decided that eighteen problems would be chosen for committee study and activity. Work was begun on the first six problems at the beginning of the third week, four weeks were allowed for committee study and activities, and one week for evaluation. The second and third block of six problems were studied in the same manner, and the last week of the semester was devoted to class evaluation of the entire course.

8. The following problems were mentioned by the class during the teacher-pupil planning period and were written on the board by the teacher:

1. Why is segregation in schools such a problem today?
2. Why do taxes keep increasing?
3. How would one go about getting a job with the city?
4. Are teen-agers the problem today that they are made out to be?
5. How does one go about improving a family's housing?
6. Why are we concerned about war and peace?
7. How does one go about getting into politics?
8. Are labor unions really as bad or as good as they are made out to be?

9. Is the governor of a state responsible for the actions of all state officials?
10. Can the President make promises for the whole country at a "summit meeting"?
11. How do newspapers decide which "side" to take in their editorials?
12. Why doesn't our state lower the voting age to 18?
13. How did it come about that the different branches of the armed services are rivals in the missile program? Is it necessary?
14. What is the real difference between a Republican and a Democrat?
15. Why is it that some people who are accused of crimes are tried in a federal court and others in a state court?
16. What is the connection between a state national guard and the armed services?
17. What is the reason for having several school districts in the same city?
18. Why are our senators called conservatives or liberals?
19. Why are the deposits of some banks covered by federal insurance and others not?
20. How does one go about getting a government job?
21. Are long political campaigns necessary?
22. Why do some areas of a city look better than others?
23. Why is the national debt so high?
24. Why should it be necessary to get permission to visit a foreign country?
25. Why don't more people vote in elections?
26. How can the President of the United States keep track of everything that goes on in the whole country?
27. How are state laws made?
28. How does one get on a jury?

29. What rights do I have as a citizen?
30. What rights would a person from a foreign country have in the United States?
31. How does Congress make laws?
32. What are the responsibilities of being a citizen?
33. Who decides what the Republican party stands for?
34. How does paper money get its value?
35. How are boundaries determined between states, cities, countries?
36. What is meant by "welfare state"?
37. Just what is involved in "taking a person to court"?

9. The eighteen problems formulated and chosen by the class for committee study and activities were as follows:

1. How to deal with racial segregation.
2. How national taxes are collected and the money spent.
3. How state, county, and city taxes are collected and the money spent.
4. How to deal with juvenile delinquency.
5. How foreign policy is made.
6. How schools are supported and maintained.
7. How national laws are made.
8. How to unify the branches of the armed services.
9. How to deal with criminal and civil court cases.
10. How laws are enforced.
11. How to understand and carry out the rights and responsibilities of citizenship.
12. How to settle labor problems.
13. How to decide how to vote on important issues.
14. How to make use of national and state government services.
15. How to decide on problems of war and peace.

16. How to make use of county and city government services.
17. How to distinguish between fact and propaganda in political campaigns.
18. How to prepare for and obtain a position in public service if time permitted.

There was some doubt as to the possibility of thoroughly studying each of these eighteen topics. It was decided that each of the six committees should make a first choice of topics, then each committee was given a second choice topic, and finally a third choice.

10. Each committee chose three problems for their areas of responsibility to the class as a whole. It was decided that periodic progress reports, as well as final oral and written reports, should be made to the class.

11. Representative study activities engaged in by all of the committees, under the guidance of the teacher, included group planning of methods of attacking the problems, the use of a variety of reading materials, the use of resource people from the community, field trips, individual research on specific areas of the problem (assigned within the group), and preparation of the final reports on the problem.

12. As the committees progressed in their work, special problems were brought either to the attention of the teacher for private discussion or to the attention of the class as a whole. Progress reports were made to the class at periodic intervals.

13. Final reports by committees were both written and oral. The oral reports were given in a variety of ways: individual and group reports, debates, panel discussions, socio-

dramas, press conferences, town hall meetings, and plays. The nature of the final report was left to the discretion of each committee.

14. During the last week of the semester, the students were administered Haefner's *Cooperative American Government Test,* Form Y, to retest the achievement after engaging in class activities for one semester.

15. Scores on both forms of Haefner's *Cooperative American Government Test* were compared for each member of the group as well as for the experimental and control groups.

16. Non-parametric statistics [2] could have been used to advantage in this study. Mr. Elliot was not aware of this so he made his interpretations on a tabular or numerical analysis of results. In the analysis of test results of small classes, non-parametric statistics are relatively simple, yet valuable. In a review of this case, the reader can find an opportunity to study and apply such statistics.

Matching the Two Groups

The matching, pairing, or equating of groups in the classroom requires the consideration of several characteristics which are related to the activity or problem in the experiment. The two groups formed from this class of twenty-four senior students were matched on the basis of four such characteristics: sex, age, I. Q. scores, and the scores on the first achievement test given—the *Cooperative American Government Test,* Form X. Each of the 24 students was assigned a code number;

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[2] Non-parametric techniques enable the researcher to make tests without knowledge of the shape of the population distribution, so that statistical inferences can be made even with small samples. See Sidney Siegel, *Non-Parametric Statistics in the Behavioral Sciences.* New York: McGraw-Hill Book Company, Inc., 1956, pp. 1-5.

the above data were entered next to each student's number. The principal was given these data and asked to divide the class into two paired groups of 12 members each. He was not aware of the identity of each student.

Human subjects can be paired only with reference to certain characteristics. This is an acknowledged limitation of any such pairing of groups of persons. Figure 1 graphically presents the pairing procedure.

Table I presents the data which were employed to match the two groups of twelve students each. It can be noted that the two groups each have six boys and six girls. Age ranges, from 16-19 years, were equated. In terms of I. Q., each group has a similar low and high range. Figure 2 shows the computed I. Q. median, mean, and standard deviation on Group I. Figure 3 presents these computations in achievement for Group I. Due to the small sample (12 students) and the atypical spread, the median was deemed a satisfactory measure of central tendency. Figure 4 reports the I. Q. and Achievement Medians for Group II.

The two groups were closely equated on these four characteristics. Other characteristics could have been considered but were not possible in this classroom experiment. Such characteristics or variables as study habits, academic motivation, or parental background, were possible variables among individuals in this experiment.

Two Methods of Grouping for Classroom Projects

In line with the purpose of this study, the teacher devised two methods of grouping students for project or committee work. Each of the two groups of twelve students was divided into committees of four members. Each committee was to work together for an eighteen week period in three problem areas.

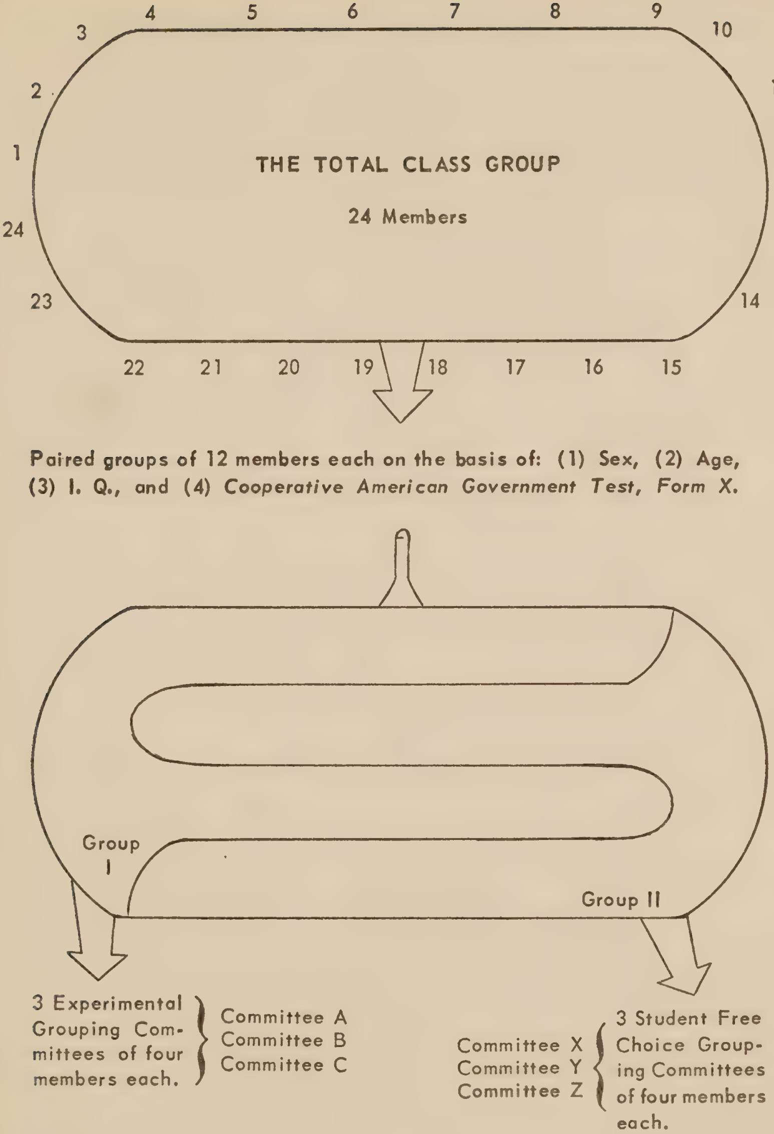
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
THE TOTAL CLASS GROUP
24 Members
Paired groups of 12 members each on the basis of: (1) Sex, (2) Age, (3) I. Q., and (4) *Cooperative American Government Test, Form X.*
Group I
Group II
3 Experimental Grouping Committees of four members each.
Committee A
Committee B
Committee C
Committee X
Committee Y
Committee Z
3 Student Free Choice Grouping Committees of four members each.

Figure 1

A GRAPHIC PICTURE OF THE PAIRING OF TWO GROUPS OF TWELFTH GRADE STUDENTS OF TWELVE MEMBERS EACH

TABLE I

GROUP CHARACTERISTICS EMPLOYED FOR PAIRING TWO GROUPS OF TWELVE MEMBERS EACH

	NAME	SEX	AGE	I. Q.	ACHIEVEMENT TEST FORM X
GROUP I	Alexander, Mary	F	18	115	88
	Arne, Merle	M	17	118	92
	Bardwell, Gordon	M	17	105	61
	Castleberry, Jule	F	16	120	92
	Fitzek, Bradley	M	17	140	96
	Gilbert, Lois	F	18	113	74
	Herrider, Bruce	M	17	90	20
	Kapok, Manuel	M	18	107	72
	Mitchell, Alice	F	17	100	45
	Monroe, Henry	M	19	90	28
	Rankin, Marie	F	17	106	76
	Vinson, Shirley	F	18	95	45
GROUP II	Adams, Frank	M	17	108	68
	Carter, Sarah	F	18	105	68
	Danton, John	M	18	90	25
	Loper, Ann	F	17	100	53
	Peterson, Mae	F	18	110	68
	Rasmussen, Lea	F	17	108	80
	Shultz, David	M	18	103	61
	Sims, Dorothy	F	17	125	94
	Sorenson, Carrie	F	17	106	75
	Tyler, Ward	M	19	107	75
	Wilson, Kevin	M	17	115	92
	Wickland, Joe	M	16	130	85

I.Q.

		f	x	fx'		fx'²
'	140-144	1	+7	+7		49
	135-139	0	+6	0		0
	130-134	0	+5	0		0
	125-129	0	+4	0	+15	0
'	120-124	1	+3	+3		9
''	115-119	2	+2	+4		8
'	110-114	1	+1	+1		1
'''	105-109	3			+ 6	
'	100-104	1	−1	−1		1
'	95- 99	1	−2	−2	− 9	4
''	90- 94	2	−3	−6		18
		N = 12				+90

$$\text{Mdn.} = 1 + \frac{\frac{1}{2}N - Sb}{f} \times i$$

$$\text{Mdn.} = 104.5 + \frac{6-4}{3} \times \frac{5}{1} = 3.33$$

$$\text{Mdn.} = \begin{array}{r} 104.5 \\ 3.33 \\ \hline 107.83 \end{array}$$

$$M = M' + \frac{\Sigma fx}{N} \times i$$

$$M = 107 + \frac{6}{12} \times \frac{5}{1} = \frac{30}{12} = 2.5$$

$$M = 107 + 2.5$$

$$M = 109.5$$

$$\text{S. D.} = i\sqrt{\frac{\Sigma fx'^2}{N} - C^2}$$

$$\text{S. D.} = 5\sqrt{\frac{90}{12} - .5}$$

$$\text{S. D.} = 5\sqrt{7.50 - .50}$$

$$\text{S. D.} = 5\sqrt{7}$$

$$\text{S. D.} = 5 \times 2.65$$

$$\text{S. D.} = 13.25$$

Figure 2

COMPUTED MEDIANS, MEANS, AND STANDARD DEVIATIONS FOR GROUP I ON I.Q. ON THE FIRST TEST

ACHIEVEMENT TEST

		f	x	fx'		fx'^2
'	95-99	1	+5	+5	+17	25
''	90-94	2	+4	+8		32
'	85-89	1	+3	+3		9
	80-84	0	+2	0		0
'	75-79	1	+1	+1		1
''	70-74	2			−14	
	65-69	0	−1	0	−31	0
'	60-64	1	−2	−2		4
	55-59	0	−3	0		0
	50-54	0	−4	0		0
''	45-49	2	−5	−10		50
	40-44	0	−6	0		0
	35-39	0	−7	0		0
	30-34	0	−8	0		0
'	25-29	1	−9	−9		81
'	20-24	1	−10	−10		100
		N = 12				302

$$\text{Mdn.} = 69.5 + \frac{6-5}{2} \times \frac{5}{1}$$

$$\text{Mdn.} = 69.5 + \frac{1}{2} \times \frac{5}{1} = \frac{5}{2} = 2.5$$

$$\text{Mdn.} = 72.0$$

$$M = M' + \frac{\Sigma fx}{N} \times i$$

$$M = 72 + \frac{-14}{12} \times \frac{5}{1} = \frac{70}{12} = -5.83$$

$$M = 66.17$$

$$\text{S. D.} = i\sqrt{\frac{\Sigma fx^2}{N} - C^2}$$

$$\text{S. D.} = 5\sqrt{\frac{302}{12} - 1.37}$$

$$\text{S. D.} = 5\sqrt{25.17 - 1.37}$$

$$\text{S. D.} = 5\sqrt{23.8}$$

$$\text{S. D.} = 5 \times 4.88 = 24.40$$

Figure 3

COMPUTED MEDIANS, MEANS, AND STANDARD DEVIATIONS FOR GROUP I ON ACHIEVEMENT IN THE FIRST TEST

I.Q.

		f
'	130-134	1
'	125-129	1
'	120-124	0
'	115-119	1
'	110-114	1
'''''	105-109	5
''	100-104	2
	95-99	0
'	90-94	1
		N = 12

$$\text{Mdn.} = 1 + \frac{\frac{1}{2}\text{N} - \text{Sb}}{\text{f}} \times \text{i}$$

$$\text{Mdn.} = 104.5 + \frac{6-3}{5} \times \frac{5}{1} = \frac{15}{5} = 3$$

$$\begin{array}{l} \text{Mdn.} = 104.5 \\ \qquad\quad\ \ \underline{3.0} \\ \qquad\quad 107.5 \end{array}$$

ACHIEVEMENT TEST

		f
	95-99	0
''	90-94	2
'	85-89	1
'	80-84	1
''	75-79	2
	70-74	0
'''	65-69	3
'	60-64	1
	55-59	0
'	50-54	1
	45-49	0
	40-44	0
	35-39	0
	30-34	0
'	25-29	1
		N = 12

$$\text{Mdn.} = 1 + \frac{\frac{1}{2}\text{N} - \text{Sb}}{\text{f}} \times \text{i}$$

$$\text{Mdn.} = 69.5 + \frac{6-6}{0} \times \frac{5}{1} = 0$$

$$\text{Mdn.} = 69.5$$

Figure 4

COMPUTED MEDIANS FOR GROUP 2 ON I.Q. AND ACHIEVEMENT TEST

Method Number I

The twelve members of Group I were divided into three committees by the combined use of the following: (1) A sociogram on first and second choice committee members of a group of four persons. (2) The teacher's use of I. Q. test scores for grouping so that each group of four members contained a range of I. Q. (3) The teacher's use of achievement test scores to insure group productivity. (4) The teacher's use of age and sex variables which might affect group productivity.

This type of grouping is hereafter called "Experimental Grouping." Table II presents the three committees that were

TABLE II

THE THREE WORK COMMITTEES FORMED BY EXPERIMENTAL GROUPING

	COMMITTEE MEMBERS	AGE	SEX	I. Q.	ACHIEVEMENT TEST, FORM X
COMMITTEE A	*1 Jule	16	F	120	92
	2 Gordon	17	M	105	61
	3 Shirley	18	F	95	45
	4 Lois	18	F	113	74
COMMITTEE B	*1 Merle	17	M	118	92
	2 Mary	18	F	115	88
	3 Marie	17	F	106	76
	4 Bruce	17	M	90	20
COMMITTEE C	*1 Bradley	17	M	140	96
	2 Manuel	18	M	107	72
	3 Alice	17	F	100	45
	4 Henry	19	M	90	28

* First person named was selected by the committee as its chairman.

formed by this method. Figure 5 is the sociogram profile which helped the teacher form these three groups. Group chairmen were selected by each committee.

Method Number II

Members of Group II were told by the teacher that they could group themselves, so long as the twelve members were divided into three groups of four members each. No teacher

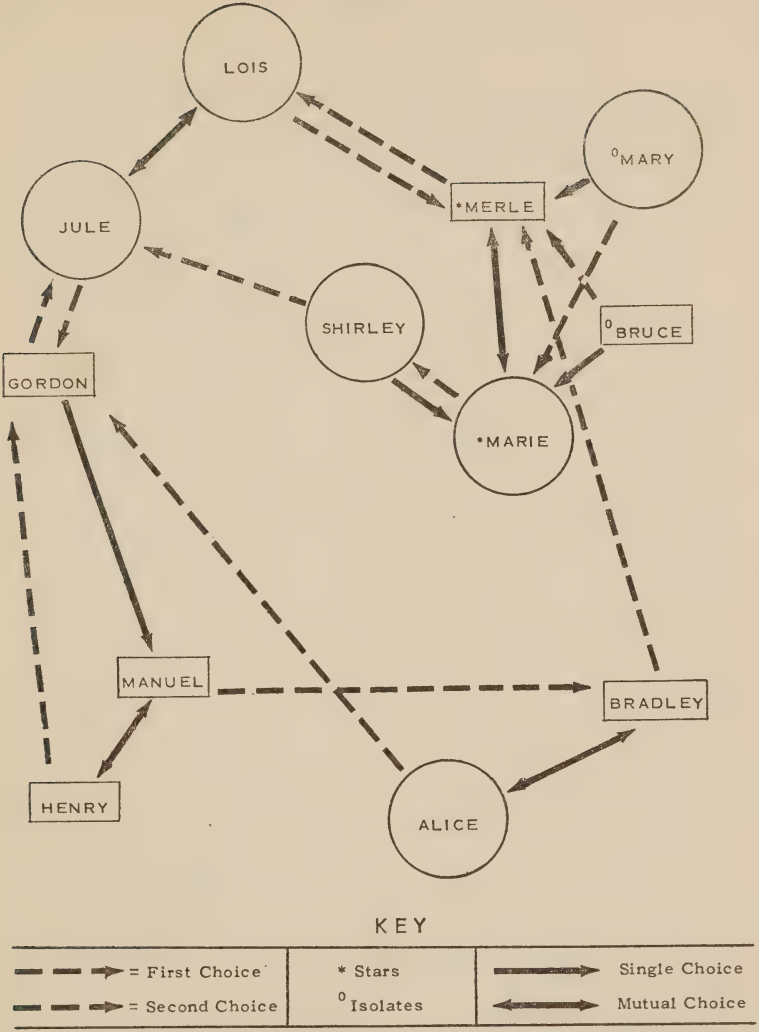

Figure 5

SOCIOGRAM ON GROUP I: FIRST AND SECOND CHOICE FOR WORK COMMITTEE MEMBERS

TABLE III

THE THREE COMMITTEES FORMED BY STUDENT FREE CHOICE GROUPING

	COMMITTEE MEMBERS	AGE	SEX	I. Q.	ACHIEVEMENT TEST, FORM X
COMMITTEE Z	*1 Kevin	17	M	115	92
	2 Mae	18	F	110	68
	3 Frank	17	M	108	68
	4 Sarah	18	F	105	68
COMMITTEE Y	*1 Ann	17	F	100	53
	2 John	18	M	90	25
	3 Carrie	17	F	106	75
	4 Lea	17	F	108	80
COMMITTEE X	*1 David	18	M	103	61
	2 Joe	16	M	130	85
	3 Dorothy	17	F	125	94
	4 Ward	19	M	107	75

* First person named was selected by the committee as its chairman.

guidance was given. Each group was asked to select its own chairman.

This type of grouping is referred to as "Student Free Choice." Such a method is frequently used by classroom teachers in many grades and levels. Table III presents the results of student free choice grouping. Sex, age, and test scores were added to the table by the teacher.

The Findings

The findings of this experiment are presented in two parts: (1) Findings evidenced by the test and re-test; and (2) findings based on teacher observation of individuals, committees, and total group performance.

Findings Related to Testing

(1) The Experimental Group increased in percentile median score from 72.0 on the first test to 77.83 on the re-test, while The Student Free Choice Group increased its median from 69.5 to 72.0. Therefore, Group 1 gained 5.83 and Group 2, which contained the Student Free Choice committees, gained 2.5. (2) All members in each of the three committees of the Experimental Group showed gains in the re-test in achievement. Table IV contains test and re-test scores for both groups; arrows are employed to pictorialize gains. (3) Two students in the Student Free Choice committees showed no percentile gain on the re-test; five students of the 12 in these committees declined in percentile rank. (4) Tests and re-tests showed that individuals in the Experimental Group who scored low in percentile rank raised their percentile rank much more than did those in the Student Free Choice Groups who had low percentiles on the pre-test.

Findings Related to Teacher Observation

(1) The three work committees formed by Experimental Grouping demonstrated, without exception, a greater degree of reflective thinking as evidenced by more creativeness and cohesiveness in their final oral and written reports to the class than did committees in the Student Free Choice group. Clarity

TABLE IV

A COMPARISON OF TEST AND RE-TEST SCORES OF 24 SENIOR STUDENTS ON THE COOPERATIVE AMERICAN GOVERNMENT TEST, FORMS X AND Y*

GROUP I EXPERIMENTAL				GROUP II STUDENT FREE CHOICE			
	Form X	(Percentiles)	Form Y		Form X	(Percentiles)	Form Y
1. Mary	88	→	94	1. Frank	68		68
2. Merle	92	→	94	2. Sarah	68	→	70
3. Gordon	61	→	75	3. John	25		20
4. Jule	92	→	98	4. Ann	53	→	61
5. Bradley	96	→	99	5. Mae	68	→	72
6. Lois	74	→	79	6. Lea	80		75
7. Bruce	20	→	40	7. David	61		53
8. Manuel	72	→	75	8. Dorothy	94		92
9. Alice	45	→	53	9. Carrie	75		68
10. Henry	28	→	45	10. Ward	75		75
11. Marie	76	→	88	11. Kevin	92	→	96
12. Shirley	45	→	61	12. Joe	85	→	88

* Arrows signify gains

of outlines, and the pursuing of their problem areas to logical conclusions, based on ample evidence, were especially noted during the evaluation of the work and reporting activities of these committees. (2) Committee *Y* of the Student Free Choice Grouping was continually in need of help and advice from the teacher. This committee was also characterized by a lack of cooperative action among members of the group, together with an apparent lack of concern whether their particular committee would make a contribution to the class. This committee contained an apathetic member (John) who contributed very little, shirked his individual responsibilities, and, at times, disrupted the purposes of his group. (3) Committee *X* of the Student Free Choice Grouping seemed to face the problem of misplaced leadership. The chosen chairman (David) did not develop the ability to assign tasks cooperatively within the committee; therefore his chairmanship was occasionally usurped, in this respect, by other members of the committee. (4) The three work committees formed by Experimental Grouping carried out all their projects to final completion, as was the case in Committee *X* and *Z* of the Student Free Choice Grouping; however, Committee *Y*, of the Student Free Choice Grouping, failed to make a satisfactory final oral and written report to the class on two out of the three problem areas chosen. (5) The three work committees formed by Experimental Grouping used the school library resources to a greater degree as evidenced by reports from the school librarian. Library conference rooms were usually used by students who requested and received direct guidance from the school librarian. (6) The three work committees formed by Experimental Grouping demonstrated a greater degree of social concern in their chosen problem areas, as evidenced by a sharper clarification of the issues in the presentation of their final oral and written reports to the class. (7) In the Experimental Group, committees were assigned by the teacher on the basis of several criteria, including individual choice on the sociogram. Each committee chose its own chairman. Committees in the Experimental Group seemingly examined more criteria of group leadership than did the committees in the Student Free Choice Group, although the teacher discussed criteria for effective group leadership with the entire class.

Implications for Grouping

In recognition of some of the limitations inherent in an experimental study of this type, as well as the conditions under which the study was conducted, the following implications for grouping seem justified:

1. A social studies teacher, using the problem-centered-group-process approach, might well consider the grouping of work committees on the basis of several criteria rather than allowing students a free rein at such a crucial point in class organization for study.
2. A teacher averse to the semi-authoritarian aspects of the Experimental Grouping of committees, as employed in this study, could use the criteria to advantage in more effective guidance of Student Free Choice selection.
3. The criteria method of selecting work committees seems to indicate a greater growth not only in the concepts usually taught in American government, but also in individual responsibility, reflective thinking, cooperative action, and social concern. These findings, inconclusive as they may be, should at least be considered seriously when a teacher develops his plans for class organization.

Suggestions for Further Research

Such a study opens up further opportunities for classroom research in grouping for committee work. Several suggestions for further research are listed. Discuss the merits of each. What other studies would be significant?

(1) A similar experiment might be conducted using a criteria method of experimental grouping of work committees as opposed to a random technique for grouping. Any one of a number of random selection procedures could be used, such as "picking the names out of a hat," random numbers, or jumbled alphabetic selection. If the class were large, it would be possible to use three methods of grouping: student free choice, random selection, and the criteria method of grouping as described in this study. (2) This study suggests, also, that an experiment could be conducted using only the student free choice method following a unit which would result in the formulation and operation of work committees. (3) The use of two sections instead of dividing one section into paired groups is suggested; however, the problems of equating the sections, along with other variables, might necessarily involve advanced statistical methods, which would be impractical for some classroom teachers. Modern research methods make it possible to equate such classes statistically only when the criteria for equating are quantitative.

QUESTIONS

1. Does this case provide sufficient descriptive information on the setting of the study? What additional information would be useful in order to interpret the experiment accurately?
2. What better ways might the teacher have graphically presented the descriptive data in this study?

3. Discuss the advantages and disadvantages of using a control group in this experimental study, as opposed to the single group in which the experiment followed a test-activity-retest pattern.
4. No limitations are listed in this study. Write, in research style, a proper set of limitations which should accompany this study.
5. Discuss the relationship between effective teaching and classroom research.
6. How was the teacher observation of student performance and group activities conducted? How should such teacher observation be made? Prepare an instrument to use in such evaluation.

THE STUDY OF TEACHING AND LEARNING PROBLEMS

9.

PRACTITIONERS in education gain much from the study of teaching and learning problems in the school and community. Yet teaching is the primary function of such people. The research which they conduct must be job-related in order to justify the research activity. This limitation handicaps very few teachers because the teacher's day richly demonstrates the abundance of practical research opportunities.

The value of research as in-service development for teachers has seldom been denied and about as seldom tried. Where tried, results have been rewarding.[1]

Schools plan workshops and training sessions to satisfy every conceivable educational need and for all manner of personnel from superintendents to custodians and bus drivers. Workshops are needed in research techniques for teaching and administrative personnel. Such workshops might build within each school a core of personnel capable of studying and acting on that school's educational problems. Every profession needs to harness practice and research together in order to keep stride with rapid developments. In some professions, as well as in business and industry, the gap between practice and research is slight. In these groups, research is almost synonymous with progress. In education, research and practice have occasionally met but generally the courtship has been trivial and momentary. In industry, production and marketing must be geared to research lest a company manufacture products which become obsolete on the assembly line. Education, with its intangibles, seldom can demonstrate so vividly a need for partnership between teaching and research. Nevertheless, literate people know that in education we must shape teaching practices to the latest knowledge we have about the teaching process. Research then serves a two-fold purpose: (1) to increase knowledge, and (2) to improve practices.

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[1] See F. P. Barnes, *Practical Research Processes.* Springfield, Illinois: Illinois Curriculum Program, 1958.

Problems Are Everywhere

Most adults experience complex problems. The problems of earning a living, selecting and successfully living with a mate, adjustment to moral, ethical, and religious ideals, the need for social interaction beyond the immediate family, the problem of world citizenship (the outer rim of our social interaction), adjustment to older age—all are human problems. Within each of these broad areas of experience specific, smaller problems can be listed. The range of each person's recognition of problems is an index of his level of awareness, his powers of critical thinking—in essence, his intelligence. People with limited intelligence live limited lives; their adjustment is many times simplified. They are untouched by many problems which beset the critical, highly sensitive person.

The ability to identify, clearly delimit, analyze, and outline an approach toward the solution of problems, however, is rare among teachers. They have difficulty in the systematic development of a study approach and plan. Why? *First,* many teachers fail to recognize that their profession requires constant analysis and reflection. The workbook, pre-cooked lesson plans, single textbook, crowded teaching schedules, choreboy activities, seem to dull the intellectual edge of many who man the nation's classrooms.

Second, teachers who fail in their ability to identify and study teaching and learning problems are generally those who inquire and question least. Problems emerge out of critical inquiry and the subsequent search for better ways of promoting learning. Some teachers seem to lose the eager quest for knowledge when they sign a contract to teach.

Third, many teachers are not able to apply scientific thinking to professional problems. There is entirely too much "telling" and not enough "asking" in teacher preparation programs. Such "telling" is found both in the subject matter courses and in the professional education courses. The tragedy is compounded since many teachers teach as they were taught.

Some Tips

Here are eight useful tips for teachers which should help develop a scientific approach toward dealing with educational problems.

First, begin early to become a scholar, in the best sense of the word, in a specific field or some phase of your job. Read as regularly as you eat and sleep. Learn to discuss issues and ideas fluently and to write with care. Teachers, too, learn by doing.

Second, always think of obstacles, handicaps, and needs as problem opportunities. Phillip Horton has written: "Every good teacher is an experimenter by nature. He experiments with himself, his students, and his subject in order to test and analyze the capacities of each and to enrich interplay between them."[2]

Third, keep a record of educational problems that are encountered in actual work or in theorizing. Write them out; carefully file them for future reference.

Fourth, gradually give structure to each of the problems as their priority is measured. In this way, the list of problems becomes a file of problems. Outlines, clippings, notes, readings, quotes, pictures, and correspondence should steadily give shape and significance to each problem.

Fifth, always be involved in working on at least one vital, absorbing problem. Be an investigator when not teaching. Select a problem which parallels your time, interest, and talents.

Sixth, freely share convictions with colleagues; trade ideas and views. There is much to gain from discussion and debate.

Seventh, do not get hastily involved in an educational problem which might make excessive demands on your time and energy but return little in the exchange. Study the family-tree of the problem, not just its surface make-up.

Last, develop an orderly approach to all educational problems. Such an approach might follow this sequence: (1) learn to recognize a need or difficulty, (2) accurately and comprehensively define the need, difficulty, or problem, (3) search for an occurrence which might be a possible clue to the problem, (4) collect data or evidence, (5) analyze these data, (6) seek to verify the hypothesis or possible solution, (7) derive careful inferences and logical conclusions from the evidence and findings, (8) plan action steps.

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[2] "Education Today," *The Reporter,* May 30, 1957.

Obstacles to Overcome

It is easy to build a case for the premise that teachers should not attempt to do research. The following excuses can be swept away without discussion: "I just don't have the time." "Am I the one who should do this?" "The community pays me to teach." "I might create jealousies in the faculty." "I have an idea but no one seems to encourage me to research it." "I always thought that research had to be formalized—like a thesis or term paper." These are excuses rather than real obstacles.

There *are* several real obstacles which warrant some recognition, but these obstacles beset all researchers, not teachers alone.

1. The identification and isolation of single problems. Typically, the teacher wants to read or conduct research which gives him the big answer—"how to teach reading, for instance." Instead he finds scores of studies on separate, delimited aspects of the problem. Even if such a teacher limits his research interest to "criteria of readability," he finds dozens of excellent research studies on this and other delimited aspects of the topic. At about this stage, the weak surrender. Those who do survive reach the conclusion that it is best to study single, delimited problems in education and that isolating a problem is a delicate but vital process.

2. The dangers of vague problem statements. The delimiting process is not merely a physical convenience for the researcher. Another purpose of delimitation is to arrive at specific objectives. It is discouraging, indeed, to begin the data-gathering process only to find that the problem is so broad that everything everywhere is related to it. A specific, delimited statement of the problem provides a boundary for investigation and en-

ables the researcher to outline the study with ease and completeness.

3. Lack of obtainable evidence in the school setting. One of the criteria of a significant problem for research is that data or evidence can be readily obtained. Descriptive or historical studies require textual and other resources. Experimental studies can only be conducted in a setting in which the experiment can actually be performed.

4. Experimentation without absolute controls. In many situations, it is more productive to conduct an experiment than to conduct a status or descriptive survey. However, as the teacher considers an experiment in education he recognizes that absolute control of variables is an ideal seldom achieved. The teacher should experiment only when the essential affective variables can be controlled and when the injected, experimental variable can be manipulated at will, but he can not wait for perfect control of all variables. Variables should be classified as controllable, partially controllable, and uncontrollable. If essential variables, such as I. Q., age, and other characteristics of the individuals involved in an experiment, cannot be controlled or equated, nor can instructional methods and contents, an experiment is of limited value. The more control over variables in educational experimentation, the more scientific the study. Generally the researcher admits to certain uncontrollable variables, and he specifies these in the limitations discussed in his study. Scientific experimentation is seldom perfectly controlled. A survey of experimental studies in education indicates a wide range of controllability, from near perfect control to very little control over variables. The range of acceptable control depends on the purpose and significance of the study.

Last, teaching and researching must be well planned. The investment in planning is priceless to the researcher. After the problem has been clearly identified, the most effective method of research must be selected and an outline of the research design or plan must be developed. Many teachers are impatient; they want to rush through planning and become involved in data-gathering.

Research Methods and Techniques

The classification of research methods has not been standardized by textbook writers. The venerable W. W. Charters used the terms "pure research" and "practical" research. W. H. Kilpatrick cited three basic methods of research: scientific, historical, and philosophical; however, Whitney declared that this was not a logical categorization.

Case V, Chapter 10, employs a variety of research techniques and tools. It is important to recognize that most research problems demand a combination of research methods and a variety of techniques. A basically descriptive study will often have a historical setting. A basically experimental study may have a descriptive prelude to the experiment. Case V is an experiment in methods of teaching reading in the fourth grade. The problem is school-centered; read the case with care. Criticize it. (All of the cases contained in this text are purposely left open to criticism.) Do not *accept* the case; *examine* it.

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CASE NUMBER V

An Experiment in the Teaching of Reading in the Fourth Grade

10.

FOR the past several years, there has been a great deal of research and discussion as to best methods of teaching reading in the elementary schools. Many books, pamphlets, and articles have been written concerning the pros and cons of today's reading programs. Parents have also expressed concern about the current methods used in teaching reading.

This study was conducted to see if there was a method of teaching reading other than the usual grouping within one classroom situation that would facilitate greater growth on the part of each child.

The objective of this experiment was to compare the reading progress of children in a homogeneously grouped, grade level situation with children in a heterogeneous single class of the same grade level.

Setting of the Experiment

The Community

Saguaro Elementary School is located in Cactus, Arizona. The city of Cactus is a rapidly growing metropolis with a population of 357,000. Saguaro Elementary School serves a partially desert community located in the northeastern part of the city. The bulk of the area served has been built in the last ten years. Most of the homes cost between $12,000 and $20,000. The newer homes range to $28,000. About fifty percent of the employed are engaged in semi-professional work, while the other fifty percent work in skilled industrial jobs. In about twenty-five percent of the families, both parents work. Roman Catholic, Protestant, and Jewish faiths are represented, with no single predominate group. Parents are quite active in working with the school for a program of school activities that will benefit everyone; school-community relations are sound, due to a well-planned program of community interpretation and fact-giving.

The School

Saguaro Elementary School, a new and modern plant in Palo Verde School District, was built three years ago. The physical conditions of the plant seem advantageous for optimum learning. It is the newest of seven schools in this district, which includes thirty square miles and 21,000 people. There are thirty regular classrooms plus a kindergarten room, library, art room, music room, home-making room, shop, science lab room, and cafetorium. The size of the playground is small but adequate since the recesses, lunch hours, and physical education periods are staggered.

The enrollment of Saguaro Elementary School is 1,010, in grades one through six. There are forty faculty members, including the special teachers for art, music, physical education, and home and industrial arts. About twenty percent of the pupils ride busses to and from school every day; over half of the children eat their noon meal in the cafetorium.

Background of the Experiment

One week prior to the first day of regular class sessions in September, after a general meeting of the entire 250 teachers of the Palo Verde District, the teachers of Saguaro School met with their principal, Mr. Amorte. He gave general instructions for the opening of school and then the teachers of each grade level met and discussed specific plans.

In the fourth grade level meeting, the four teachers were especially interested in trying to improve their reading program in comprehension, word attack, and phonics. Miss Helen Beck, new to the system this year, inquired as to what methods had been used to teach reading. Mrs. Barbara Smith, who had been at Saguaro three years, replied that each teacher had taught reading in her own room in her own way. Miss Beck then explained a method which had been tried at Ocotillo School, where she did her practice teaching, a few years ago. She briefly described the method to the other three teachers:

> The children from three fourth grade rooms were divided into ability groupings of low, middle, and high. Each day the children left their homerooms and went to their respective reading groups. Each one of the three teachers taught one of the reading groups. At the end of the period, the children returned to their homerooms.

After this brief description, Mr. John Carter, who had been at Saguaro two years, stated he knew of a school in which the same method was used. "The teachers who have used it," he stated, "felt it proved to be an effective method. I think we should try it." Mrs. Smith, after listening to Miss Beck and Mr. Carter, said she thought it would be a good idea for them to try this method of grouping for reading instruction in their fourth grade during the coming school year.

Mrs. Sally Brown, starting her third year of teaching at Saguaro Elementary School (six years of other teaching experience), said she felt it would be a good idea to try this approach, but since she already had her reading program planned for the year, she preferred not to take part in the experiment for the present school year. She suggested it would be interesting to compare her class with the results of the other three to see under which method children of comparable abilities made the best progress.

The other three teachers, Miss Beck, Mrs. Smith, and Mr. Carter, made an appointment with the principal for nine o'clock the following morning to explain the plan and to get his reaction.

Mr. Amorte, a progressive principal interested in providing the best possible education for children, offered to assist the teachers in every possible way by scheduling around the reading period and by supplying needed supplementary materials.

It was at this point that they decided to make an actual experiment of their proposed method of grouping children for reading. They consulted Mrs. Brown again, and she agreed to join the experiment with her class as the control group. She further agreed to cooperate with them in the pairing of students in her reading groups with students in their experimental groups so that achievement could be measured more scientifically.

The Problem

The delimited problem, as stated by the fourth grade teachers, was as follows: An experiment with fourth grade students to measure the changes in grade level reading scores at Saguaro Elementary School, Cactus, Arizona, to determine the achievement in reading under three separate teachers, each teaching a level by homogeneous grouping, as compared to one teacher teaching three levels of achievement within one room.

The Experiment

Equating the groups and testing. The three fourth grades which were homogeneously grouped for reading instruction were referred to as the Experimental Classes or Experimental Groups. Mrs. Brown's entire fourth grade class was referred to as the Control Class and her reading groups as the Control Groups.

All the students in the Experimental Classes were divided into three reading groups: High, Middle, and Low. The following criteria were used to assign pupils to these groups:

1. Reading scores on the Metropolitan Achievement Test (Administered in the early Fall)
2. Reading scores on the Weekly Reader (Administered in the early Fall)
3. The teacher's judgment of each child's oral reading ability and phonetic knowledge

(The composition of these three groups can be studied in Tables I, II, and III.)

Mrs. Brown used the same criteria to group the children in her class. She also had three reading groups: High, Middle, and Low. (For a breakdown of her class see Table IV.)

The groups were matched in the following manner: A pupil was picked from the High Experimental Group to match *each* pupil in the High Control Group; a pupil was picked from the Middle Experimental Group to match *each* pupil in the Middle Control Group, and so on. There was wide choice in the pairings due to the fact that each Experimental Group contained approximately three times as many pupils as each Control

TABLE I

HIGH EXPERIMENTAL GROUP
(Total Class: 20 Girls, 10 Boys)

			METROPOLITAN		WEEKLY READER TESTS		
NAME	C.A.	I.Q.	9/58	4/59	9/58	1/59	3/59
Nixon, Gaynell	113	125	7.4	8.5	5.9	6.4	6.5
Shafer, Judd	113	127	7.2	8.6	6.3	6.5	6.5
Kosanovich, Janice	112	122	6.9	7.5	6.0	6.3	6.5
*Chism, Carol	113	125	6.9	8.7	6.3	6.5	6.5
Wartchow, Marlys	117	114	6.9	8.9	5.5	5.6	5.9
Ozanne, Stephanie	113	117	6.8	8.9	6.2	6.4	6.5
*Kingston, Karla	106	125	6.7	8.1	5.9	5.3	6.5
*Bates, Nancy	111	130	6.7	8.3	6.1	6.3	6.5
*Desserich, Wendy	104	128	6.4	7.3	5.2	5.3	5.8
Lane, Jill	116	125	6.2	7.1	5.8	6.2	6.5
Dimm, Julia	113	121	6.2	7.3	5.4	5.5	5.9
Knowles, Ricky	110	117	6.1	8.7	5.5	5.5	6.4
Beals, Penny	115	110	6.0	7.8	5.4	5.6	5.8
Christian, Nelson	108	123	5.9	8.1	5.1	5.2	5.8
Cione, Cynthia	113	114	5.8	7.4	4.8	4.9	5.5
Willsey, Sherrie	101	116	5.7	6.6	5.2	5.3	5.8
*Itrich, Earl	113	117	5.6	6.8	5.1	5.4	5.7
Metzer, Lynn	115	108	5.6	6.8	5.9	6.0	6.4
*Kennedy, Brent	113	115	5.6	6.6	5.5	6.5	6.5
Tollefson, Chris	108	122	5.5	7.3	5.3	5.5	5.9
Dyer, Richard	104	123	5.4	7.1	5.2	5.4	6.2
*Johnson, Jill	115	116	5.4	7.6	6.0	6.4	6.5
Kramer, Karen	113	127	5.3	7.4	5.2	5.4	5.7
*Brown, Edward	104	117	5.1	6.5	5.3	5.5	5.8
Strickland, Norma	114	107	5.1	6.2	5.0	5.4	5.5
*Wariner, Danny	113	109	5.0	6.8	5.3	6.4	6.4
*Nochta, Melody	112	108	4.8	6.7	4.9	5.4	6.4
Stevenson, Curtis	108	101	4.8	5.9	4.8	5.4	5.5
*Forrester, Heather	109	117	4.7	5.7	5.2	5.4	5.9
White, Linda	113	111	4.6	6.3	4.7	5.4	5.6

* Matched to Control Group

TABLE II

MIDDLE EXPERIMENTAL GROUP
(Total Class: 12 Girls, 18 Boys)

NAME	C.A.	I.Q.	METRO-POLITAN		WEEKLY READER TESTS		
			9/58	4/59	9/58	1/59	3/59
Bartlo, Katherine	108	115	4.5	5.6	4.7	4.9	5.3
Miller, John	105	112	4.4	5.5	4.9	5.5	5.7
Fox, Randy	105	126	4.4	5.8	4.6	5.0	5.6
*Kusse, Charles	113	108	4.3	5.7	4.6	4.8	5.6
Hugill, Stephen	115	108	4.3	5.2	4.7	5.2	5.7
*Crimmings, Charlotte	114	106	4.3	5.2	4.4	4.7	4.9
*Crimins, Bert	112	97	4.3	5.2	3.7	4.1	4.7
*Romley, Richard	113	103	4.3	5.2	4.4	4.8	5.1
Mann, Phillip	110	109	4.2	5.6	4.3	4.8	5.6
*Carney, Jean	111	107	4.2	5.5	4.6	5.0	5.5
*Mikkelson, Mark	107	107	4.2	5.2	3.9	4.5	4.8
*McCullough, Mike	113	106	4.2	5.3	3.9	4.8	4.9
Murphy, Craig	110	117	4.2	6.0	4.0	4.4	4.7
Bowman, Gary	108	110	4.2	4.9	3.9	4.5	4.6
Neimer, Judy	106	112	4.2	5.8	4.2	4.9	5.1
*Christiansen, Karen	108	108	4.1	4.9	4.7	5.4	5.6
Bowman, Larry	108	112	4.0	4.6	4.3	4.6	6.5
Hold, Janell	107	108	4.0	4.8	4.2	4.6	4.7
DeWitt, Mark	112	102	4.0	5.0	4.1	4.6	4.8
*Dersham, Charles	112	103	3.9	4.7	4.2	4.6	4.8
Day, Linda	108	105	3.9	5.9	4.2	4.7	4.9
*Stevenson, Gary	120	101	3.9	5.9	4.7	5.4	5.6
Bouchard, Donna	116	107	3.9	4.6	4.3	4.7	5.6
*Eich, Paula	111	106	3.8	5.0	4.0	4.7	4.9
Null, Ronny	108	106	3.8	5.0	3.9	4.7	4.9
Baughman, Barbara	115	104	3.8	4.4	4.1	4.7	4.8
Seabright, Barbara	111	112	3.7	4.7	4.2	4.7	4.9
Walker, Charles	109	99	3.7	5.6	4.2	5.0	5.5
Petras, Gregory	111	97	3.7	4.8	3.9	4.1	4.7
Templet, Melanie	104	127	4.7	5.9	4.6	4.9	5.1

* Matched to Control Group

TABLE III

LOW EXPERIMENTAL GROUP
(Total Class: 7 Girls, 11 Boys)

			METROPOLITAN		WEEKLY READER TESTS		
NAME	C.A.	I.Q.	9/58	4/59	10/58	1/59	4/59
*Lucke, Kathy	107	98	3.6	4.3	3.7	4.0	4.5
McKinney, Danny	109	82	3.5	3.5	3.7	3.3	4.3
Lestikow, Jim	106	92	3.5	4.0	3.6	3.8	4.0
Stranb, Frances	110	82	3.5	3.7	3.5	3.4	4.0
Swenson, Sharon	120	99	3.3	3.9	3.6	4.5	5.5
Palmer, Ronnie	110	88	3.3	3.9	3.3	3.8	4.2
*McCauley, Tom	108	90	3.2	3.9	3.7	3.8	4.1
Smith, Peggy	110	82	3.1	3.9	3.0	3.4	3.8
*Roscoe, Sherry	114	88	3.1	3.9	3.0	3.8	4.0
Taylor, Larry	109	86	3.0	3.9	3.2	3.5	3.8
Nelson, Steve	107	88	3.0	3.6	3.1	3.3	3.9
*Westland, Linda	106	88	3.0	3.5	3.2	3.6	4.3
Crazier, Terry	109	96	2.9	3.9	2.8	2.9	3.8
*Belt, June	111	75	1.9	3.0	2.8	3.7	3.9
*Cox, Carl	113	91	2.9	3.5	3.2	3.4	4.2
Hamaker, Charles	110	81	2.8	3.3	2.9	3.6	3.8
*Bolt, John	111	92	2.7	3.5	2.9	3.6	4.1
Baird, Alan	109	88	2.4	3.4	2.5	3.5	4.0

* Matched to Control Group

TABLE IV

THE CONTROL CLASSROOM AND ITS THREE GROUPS

(Total Class: 12 Girls, 18 Boys)

			METRO-POLITAN		WEEKLY READER TESTS		
HIGH GROUP	**C.A.**	**I.Q.**	**9/58**	**4/59**	**9/58**	**1/59**	**3/59**
Sourant, Nina	105	125	6.7	6.9	4.9	5.0	5.4
Heller, Sam	125	124	6.7	7.4	4.5	4.8	5.2
Dyer, David	103	131	6.7	8.0	5.0	5.3	5.6
Whipple, Elizabeth	115	131	6.5	8.5	5.6	5.7	6.0
Stich, Carol	108	124	5.6	7.7	5.9	6.1	6.2
Ware, Sandra	115	118	5.5	5.7	6.2	6.3	6.4
Jaquith, Marsha	111	117	5.5	6.3	6.0	6.2	6.4
Hollopeter, Robert	105	114	5.3	6.7	6.0	6.3	6.4
Herbert, Chris	115	113	4.8	6.2	5.8	6.0	6.2
Pennington, Linda	111	119	4.9	5.8	5.5	5.5	5.7
Schyer, Buddy	116	110	4.8	6.4	5.6	5.8	6.0
MIDDLE GROUP							
Kober, Diane	113	107	4.4	5.2	4.6	4.9	5.6
Verner, Jackie	104	102	4.3	5.3	4.3	4.7	5.2
Goldberg, Lynda	110	96	4.3	4.8	4.5	5.5	5.7
Boynton, Richard	113	99	4.2	4.7	4.5	4.8	5.3
Leavenworth, David	115	109	4.2	5.0	4.6	5.0	5.4
Kinney, Randy	115	110	4.2	5.3	4.0	4.3	4.6
Skogland, Stanley	107	103	4.2	5.1	4.3	4.6	5.0
Webb, Stanley	115	102	4.1	5.2	4.1	4.5	4.6
Treadway, Mary	114	102	3.9	4.8	4.3	4.6	4.9
Taylor, James	107	103	3.9	4.8	4.0	4.7	4.8
Marcus, Gary	115	99	3.9	4.7	4.1	4.5	4.7
Eich, David	116	105	3.8	4.9	3.9	4.7	4.8
LOW GROUP							
Bouchard, Billy	110	95	3.6	4.2	3.6	3.8	4.2
Boucher, Roland	115	88	2.9	3.9	2.8	3.4	3.8
Jennings, Loretta	113	90	3.3	4.4	3.2	3.5	4.1
Lindvig, Edward	110	90	3.2	4.2	3.4	3.7	4.2
Hill, Jim	112	72	2.0	3.2	2.8	3.0	3.1
Mance, Bill	108	90	2.9	3.5	2.9	3.3	3.5
Arney, Mary Kay	109	91	2.8	3.8	2.9	3.5	3.8

Group. This, of course, made it possible to find, in the Experimental Groups, individuals who very closely matched each child in the Control Groups. The following criteria were used for pairing students:

1. I.Q. scores from the Pintner Durost Test-Elementary Form A (Administered in the Fall)
2. Reading scores on the Metropolitan Achievement Test-Form R (Administered in the Fall)
3. Reading scores on the Weekly Reader Test (Administered in the Fall)

(The results of this pairing can be noted in Tables V, VI, and VII.)

Methods Used

All the fourth grade teachers met to discuss the general procedure to be followed in their reading program. In order to measure maximum results, it was agreed to keep the program flexible. If a child progressed to the point where he belonged in a higher group, he was moved to that group. If a child failed to learn effectively with his group, he could be moved to a lower group. Partners were not to be changed in paired groups under these circumstances. However, if a child appeared to have been definitely misplaced in the beginning, he was reclassified and matched with another pupil. Mrs. Brown followed the same procedure with her Control Groups.

The time set for all reading periods was from 9:00 to 9:45 A.M. The teachers believed that the children were more alert, more settled, and more eager to learn in the mornings. A forty-five minute period was decided upon since it seemed to be about the maximum interest span of these fourth graders. It was also the time allotment recommended by the State Department of Education.

TABLE V

HIGH GROUP PAIRINGS

(Starred Students Are in Experimental Group)
(Unstarred Students Are in the Control Group)

PAIR NO.	NAMES	I.Q.[1]	METRO.[2] 9/58	METRO.[3] 4/59	W/R[4] 9/58	W/R[5] 1/59	W/R[6] 3/59
1	*Chism, Carol	125	6.9	8.7	6.3	6.5	6.5
	Sourant, N.	125	6.7	6.9	4.9	5.0	5.4
2	*Kingston, K.	125	6.7	8.1	5.9	5.3	6.5
	Heller, S.	124	6.7	7.4	4.5	4.8	5.2
3	*Bates, N.	130	6.7	8.3	6.1	6.3	6.5
	Dyer, C.	131	6.7	8.0	5.0	5.3	5.6
4	*Desserich, W.	128	6.4	7.3	5.2	5.3	5.8
	Whipple, E.	131	6.5	8.5	5.6	5.7	6.0
5	*Itrich, E.	117	5.6	6.8	5.1	5.4	5.7
	Stich, C.	124	5.6	7.7	5.9	6.1	6.2
6	*Kennedy, B.	115	5.6	6.6	5.5	6.5	6.5
	Ware, S.	118	5.5	5.7	6.2	6.3	6.4
7	*Johnson, J.	116	5.4	7.6	6.0	6.4	6.5
	Jaquith, M.	117	5.5	6.3	6.0	6.2	6.4
8	*Brown, E.	117	5.1	6.5	5.3	5.5	5.8
	Holopeter, R.	114	5.3	6.7	6.0	6.3	6.4
9	*Wariner, D.	109	5.0	6.8	5.3	6.4	6.4
	Herbert, C.	113	4.8	6.2	5.8	6.0	6.2
10	*Nochta, M.	108	4.8	6.7	4.9	5.4	6.4
	Pennington, L.	119	4.9	5.8	5.5	5.5	5.7
11	*Forrester, H.	117	4.7	5.7	5.2	5.4	5.9
	Schyer, B.	110	4.8	6.4	5.6	5.8	6.0

[1] Intelligence Quotient, Pintner-Durost, Elementary Form A

[2] Reading Score, Metropolitan Achievement Test, Elementary Form R

[3] Reading Score, Metropolitan Achievement Test, Elementary Form T

[4] Weekly Reader, Quarterly Reading Inventory Test, Weekly Reader Publishing Company, Cincinnati, Ohio

[5] *Loc. cit.*

[6] *Loc. cit.*

TABLE VI

MIDDLE GROUP PAIRINGS

(Starred Students Are in Experimental Group)
(Unstarred Students Are in the Control Group)

PAIR NO.	NAMES	I.Q.[1]	METRO.[2] 9/58	METRO.[3] 4/59	W/R[4] 9/58	W/R[5] 1/59	W/R[6] 3/59
1	*Kusse, C.	108	4.3	5.7	4.6	4.8	5.6
	Kober, D.	107	4.4	5.2	4.6	4.9	5.6
2	*Crimmings, C.	106	4.3	5.2	4.4	4.7	4.9
	Verner, J.	102	4.3	5.3	4.3	4.7	5.2
3	*Crimins, B.	97	4.3	5.2	3.7	4.1	4.7
	Goldberg, L.	96	4.3	5.8	4.5	5.5	5.7
4	*Romley, R.	103	4.3	5.2	4.4	4.8	5.1
	Boynton, R.	99	4.2	5.7	4.5	4.8	5.3
5	*Carney, J.	107	4.2	5.5	4.6	5.0	5.5
	Leavenworth, D.	109	4.2	5.0	4.6	5.0	5.4
6	*Mikkelson, M.	107	4.2	5.2	3.9	4.5	4.8
	Kinney, R.	110	4.2	5.3	4.0	4.3	4.6
7	*McCullough, M.	106	4.2	5.3	3.9	4.8	4.9
	Skogland, S.	103	4.2	5.1	4.3	4.6	5.0
8	*Christiansen, K.	108	4.1	4.9	4.7	5.4	5.6
	Webb, S.	102	4.1	5.2	4.1	4.5	4.6
9	*Dersham, C.	103	3.9	4.7	4.2	4.6	4.8
	Treadway, M.	102	3.9	4.8	4.3	4.6	4.9
10	*Day, L.	105	3.9	5.9	4.2	4.7	4.9
	Taylor, J.	103	3.9	4.8	4.0	4.7	4.8
11	*Stevenson, G.	101	3.9	5.9	4.7	5.4	5.6
	Marcus, G.	99	3.9	4.7	4.1	4.5	4.7
12	*Eich, P.	106	3.8	5.0	4.0	4.7	4.9
	Eich, D.	105	3.8	4.9	3.9	4.7	4.8

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[1] Intelligence Quotient, Pintner-Durost, Elementary Form A

[2] Reading Score, Metropolitan Achievement Test, Elementary Form R

[3] Reading Score, Metropolitan Achievement Test, Elementary Form T

[4] Weekly Reader, Quarterly Reading Inventory Test, Weekly Reader Publishing Company, Cincinnati, Ohio

[5] *Loc. cit.*

[6] *Loc. cit.*

TABLE VII

LOW GROUP PAIRINGS

(Starred Students Are in Experimental Group)
(Unstarred Students Are in the Control Group)

PAIR NO.	NAMES	I.Q.[1]	METRO.[2] 9/58	METRO.[3] 4/59	W/R[4] 9/58	W/R[5] 1/59	W/R[6] 3/59
1	*Lucke, K.	98	3.6	4.0	3.7	4.0	4.5
	Bouchard, B.	95	3.6	4.2	3.6	3.8	4.2
2	*Westland, L.	88	3.0	3.6	3.2	3.6	4.3
	Boucher, R.	88	2.9	3.9	2.8	3.4	3.8
3	*McCauley, T.	90	3.2	3.6	3.7	3.8	4.1
	Jennings, L.	90	3.3	4.4	3.2	3.5	4.1
4	*Roscoe, S.	88	3.1	3.8	3.0	3.8	4.0
	Lindvig, E.	90	3.2	4.2	3.4	3.7	4.2
5	*Belt, J.	75	1.9	2.2	2.8	3.7	3.9
	Hill, J.	72	2.0	3.2	2.8	3.0	3.1
6	*Cox, C.	91	2.9	3.4	3.2	3.4	4.2
	Mance, B.	90	2.9	3.5	2.9	3.3	3.5
7	*Bolt, J.	92	2.7	3.3	2.9	3.6	4.1
	Arney, M.	91	2.8	3.8	2.9	3.5	3.8

[1] Intelligence Quotient, Pintner-Durost, Elementary Form A

[2] Reading Score, Metropolitan Achievement Test, Elementary Form R

[3] Reading Score, Metropolitan Achievement Test, Elementary Form T

[4] Weekly Reader, Quarterly Reading Inventory Test, Weekly Reader Publishing Company, Cincinnati, Ohio

[5] *Loc. cit.*

[6] *Loc. cit.*

Group Selection by Teachers

Of the three experimental classes, the teachers divided themselves accordingly:

1. High Group—Miss Beck
   Miss Beck took this group because she was interested in working with additional enrichment materials which would stimulate the children to work independently above the fourth grade level.
2. Middle Group—Mrs. Smith
   Since Mrs. Smith had no definite preference, she agreed to take the average group.
3. Low Group—Mr. Carter
   Carter preferred this group because of previous interest and experience with the reading problems of the slow learning child.

(As previously noted, the three groups in Mrs. Brown's class became the Control Groups.)

All four teachers made great efforts to stimulate the children's interest in reading. They agreed to use parallel series of textbooks and workbooks for their various levels in order to provide a sequential program. They decided to use the Scott, Foresman Series for the basic texts. Experimental Group teachers took extra time to become acquainted with the children in their reading groups who came from the other classes. Not only did they study each child's ability, they also examined his individual interests with the aid of a Reading Interest Inventory Test.

In all four classrooms, bulletin boards were prepared to correlate with the stories studied by each reading group. Library books were displayed on the interest level of each group. Time was set aside to discuss why reading is fun and important to each child. Each teacher set up similar requirements for library book reports to match their group's ability.

Each teacher in the Experimental Groups consulted with Mrs. Brown, who had the Control Groups, in order to keep requirements and materials in respective groups as closely alike as possible. This consultation continued periodically throughout the year.

Miss Beck and Mrs. Brown decided to begin their year's work in the High Groups with a series book called *More Times and Places,* because it gave a review of vocabulary, word analysis, and dictionary skills that would be useful in preparing children for advanced work. From here, they read *Luck and Pluck,* an enrichment text for fourth graders. Finally, the High Groups read part of *On the Trails of Adventure.*[1]

Supplementary texts and workbooks were used.[2] Enrichment activities for High Groups included choral reading, dramatization of textbook stories, writing original poems, and developing interest in newspaper reading through summarizing topics of interest to the pupils.

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[1] Following is the list of basic readers:

Gray, William S., *The New Days and Deeds.* Chicago: Scott, Foresman and Company, 1955, 320 pp.

——— *The New Times and Places.* Chicago: Scott, Foresman and Company, 1954, 320 pp.

——— *More Times and Places.* Chicago: Scott, Foresman and Company, 1955, 320 pp.

——— *Just Imagine.* Chicago: Scott, Foresman, and Company, 1953, 255 pp.

Hildreth, Gertrude, *Far Away Ports.* Chicago: John C. Winston Company, 1947, 279 pp.

Nolen, Barbara, *Luck and Pluck.* Boston: D. C. Heath and Company, 1955, 370 pp.

Yoakam, Gerald, Kathleen Hester, and Louise Abney, *On the Trail of Adventure,* Laidlaw Publishers, Inc., 1949, 384 pp.

[2] (Some authorities in reading maintain that in order for a child to obtain a higher level of reading the basic materials must be selected on an interest level higher than the vocabulary level.)

(1) *The Ranch Book.* Core Vocabulary Series, The Macmillan Company, Primer.

(2) *Rusty Wants a Dog.* Core Vocabulary Series, The Macmillan Company, First Reader.

Tests were periodically given to measure progress in speed, comprehension and vocabulary. *The Readers Digest Skill Builders,* Grade 5, were used as a basis for these tests.

Mrs. Smith and Mrs. Brown decided to begin their Middle Groups with *New Times and Places.* This book is designed for children with beginning fourth grade vocabulary. Upon its completion, the children would read the second text, *More Times and Places,* which would give a review of third and early fourth grade vocabulary and develop a firm foundation for further enriched materials.

Periodically, the *Readers Digest Skill Builders,* Grade 4, was used to measure each child's progress in speed, comprehension and vocabulary understanding.

To enrich this program, the teachers used dramatization of textbook stories, choral reading, memorization and recitation of poetry.

Mr. Carter and Mrs. Brown decided to begin their Low Groups with *Just Imagine,* a text designed to bring children from second and third grade reading levels into fourth grade level in vocabulary. When they finished *Just Imagine,* they

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(3) *Just Imagine.* Scott, Foresman and Company, Low Fourth.

(4) *Robinson Crusoe for Young Folks.* Beckley-Cardy Company, Fourth.

(5) *Buffalo Bill.* American Adventure Series, Fifth.

(6) *Davy Crockett.* American Adventure Series, Wheeler Company, Fifth.

(7) *John Paul Jones.* American Adventure Series, Wheeler Company, Sixth.

(8) *The Rush for Gold.* American Adventure Series, Wheeler Company, Sixth.

(9) *Daniel Boone.* American Adventure Series, Wheeler Company, Sixth.

would go into *New Times and Places,* the beginning fourth grade reader. Stress was placed on the word attack skills.

For enrichment materials, they used dramatization of stories, writing stories into plays to be presented as puppet shows. (It was felt that the puppet shows gave the Slow Groups status and prestige with their peers in the higher reading groups.) Weekly Readers, dictionary work, and memorization of poems gave variety to the reading activity. *Readers Digest Skill Builders,* Grade 3, Part II, was used periodically to measure growth in vocabulary and comprehension.

Limitations

In this experiment, there were certain limitations which may or may not have had an effect on the results of the experiment:

1. The use of three groups inhibited the adequate division of the children for ability grouping in the Control Groups. This made the High and Middle Control Groups too large for best results.
2. Materials for children's use were limited due to the school budget and the newness of the school.
3. The Weekly Reader Test was limited in measuring ability. These tests measure only to 6.5 grade level and therefore do not accurately gauge higher abilities of fourth graders.
4. No attempt was made to measure each child's attitude toward the testing or his motivation to learn.
5. The test-taking skills were variables which depended on the child's previous experience in home environment as well as school.
6. The teachers had limited time to help individual students due to the large number of students in the groups.
7. Teachers were only able to use the Metropolitan Achievement Test and not a complete reading battery to determine the child's area of greatest need.
8. No attempt was made to measure or equate teacher abilities.

9. There was no over-all coordinator of this experiment.
10. Keeping variables constant was difficult. (Such things as absences, parental influences, study habits, were examples of these variables.)
11. A single experiment must generally be repeated in order to develop valid inferences and conclusions.

Findings and Conclusions

The reading progress of the children in the paired groups was measured by taking the difference between their beginning scores and ending reading scores on the Metropolitan. To determine their ending scores, different forms of the same tests were given near the close of the school year. Mean gains were then computed.

The results of this testing showed that the paired students in the High Experimental Group averaged a growth of 1.5 years, while the High Control Group had a mean gain of 1.2 years. Paired students in the Middle Experimental Group averaged 1.2 years gain, while the Middle Control Group had a mean gain of .9 years. Paired students in the Low Experimental Group showed a .5 mean gain, and the Low Control Group averaged 1.0 year gain. Table VIII summarizes these data; Figures 1, 2, and 3 (see pp. 201, 202, 203), graphically compare student achievement in all three levels of grouping.

Although the average numerical gains were not spectacular, the Experimental Groups demonstrated greater average progress in both the High and Middle Groups. The Low Control Group, however, gained twice that of the Low Experimental Group. The charts and graphs which report individual progress in each pair are more revealing. Mr. Amorte, the principal, gave his approval to continue the experiment in all the fourth grades the following year. He strongly recommended that the

TABLE VIII

SUMMARY OF FINDINGS

GROUPS	C.A.[1] MEDIAN	I.Q.[2] MEDIAN	METROPOLITAN AVERAGE 9/58[3]	METROPOLITAN AVERAGE 4/59[4]	WEEKLY READER TESTS AVERAGE 9/58[5]	WEEKLY READER TESTS AVERAGE 1/59[6]	WEEKLY READER TESTS AVERAGE 3/59[7]
High Control	112	120.5	5.7	6.9	5.5	5.7	5.9
High Experimental	110.3	118.8	5.7	7.2	5.5	5.9	6.2
Middle Control	110	103.0	4.1	5.0	4.3	4.74	5.1
Middle Experimental	110	104.2	4.1	5.3	4.3	4.8	5.1
Low Control	109	88.0	2.9	3.9	3.1	3.5	3.8
Low Experimental	109.7	88.8	2.9	3.4	3.2	3.6	4.1

[1] Chronological Age
[2] Intelligence Quotient, Pintner-Durost, Elementary Form A
[3] Metropolitan Achievement Test, Elementary Form R
[4] Metropolitan Achievement Test, Elementary Form T
[5] Weekly Reader, Quarterly Reading Inventory Test, Weekly Reader Publishing Company, Cincinnati, Ohio
[6] *Loc. cit.*
[7] *Loc. cit.*

fifth and sixth grades seek ways to research and effectiveness of the reading program. More formal research plans were devised by teacher committees. In a district-wide faculty meeting, the experiment was discussed and interest was expressed by several personnel from other elementary schools.

After the results were analyzed, the teachers discussed the program and weighed its values. Some of the conclusions resulting from the experiment were:

1. There was an enrichment of each teacher's reading program through cooperation and sharing of knowledge and ideas with participating teachers.
2. One teacher with one homogeneous group could concentrate on the needs of the group rather than on the needs of three groups within a single classroom.
3. There was more time for teacher preparation of lesson plans in the Experimental classes.
4. Homogeneous grouping seemed to increase the child's sense of security in reading. Children did not seem to feel as much pressure from peers as they did in a classroom with three groups in one room.
5. Discipline problems were more minor and less frequent than previously experienced. Many theories were advanced to explain this phenomenon. In general, it was attributed to greater interest and enthusiasm on the part of the students.
6. The teachers believed that the children's interest in reading and their incentive to improve was profound in comparison with previous classes. The teachers credited the concentration on preparation for teaching with being the main reason for this increased student interest. They concluded that effective teaching promotes interest and improves learning.
7. Students in the Low Control Group achieved more than their pairs in the Low Experimental class. Though dramatic inferences should not be made in such a single experiment, it is possible that this gain was due to heterogeneous grouping. However, it could have been the result of teacher-stress at the lower level of the Control class.
8. The widest spread of gain was between the High Experimental and the High Control pairs of students. Inferences should be carefully made. In a further experiment, a teacher might desire to examine further this occurrence by designing a study which deals only with grouping at high levels.

Further Statistical Analysis

Students of this case who desire to compute standard deviations in order to inspect more precisely and interpret these scores might gain additional insight by a study of: (1) A comparison of the S. D. of the 78 students in the Experimental Classes (High, Middle, and Low) with the 30 children in the Control Class. Grouped or ungrouped data could be used; either the long or short methods of computation would be satisfactory. (2) A comparison of all of the Experimental, High, or Middle, or Low Group with those in the Control Group. The S. D. for small samples can be easily computed, after computation of the mean, with either of the following formulas: $\text{S. D.} = \sqrt{\frac{\Sigma x^2}{n}}$ (for ungrouped data) or $\text{S. D.} = i \sqrt{\frac{\Sigma fx^2}{n} - C^2} \sqrt{\frac{n}{n-1}}$ (for grouped data) *

The quartile deviation of the above comparative groups of scores would be easier to compute than the standard deviation. This measure of variation is concerned with the position of the middle 50 percent of the data. Some statistic texts refer to this measure of variation as the semi-interquartile range: $Q = \frac{Q_3 - Q_1}{2}$. Such a computation tells us about the range or spread of the middle of a distribution.

The student desirous of making such additional statistical interpretations should consult a basic book in statistics.[3]

* The factor $\sqrt{\frac{n-1}{n}}$ provides for the correction of bias which becomes important in small samples.

[3] See John E. Freund, *Modern Elementary Statistics.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1952, pp. 87-96; or N. M. Downie, *Fundamentals of Measurement: Techniques and Practices.* New York: Oxford University Press, 1958, pp. 29-32.

Graphic Figures Depicting Individual Pupil Growth in the Experimental and Control Groups

The graphs on the following pages illustrate each child's growth in reading. Note the following four steps:

1. Examine Figure 1.
2. Find the bars representing Pair 1.
3. The solid bar represents the child from the High Experimental Group and shows that his reading ability progressed one year and ten months.
4. His partner from the High Control Group (striped bar) shows a gain of only two months.

Some significant facts can be observed from these three figures:

I. High Groups
    A. In seven out of eleven pairs, pupils in the Experimental Group experienced more growth in reading than did those in the Control Group.
    B. In only one instance did a child from the Experimental Group fail to gain at least one year.
    C. From the Control Group, five children fell below the one year mark.
II. Middle Groups
    A. In seven out of twelve pairs, the pupils from the Experimental Group experienced more growth than those in the Control Group.
    B. In five instances children from the Experimental Group failed to gain one year.
    C. Six pupils from the Control Group achieved less than a one year gain.
III. Low Groups
    A. All seven pairs of children in the Control Group showed greater gain than did their pairs in the Low Experimental Class.
    B. Greater growth differentials occurred in the Low Groups than in the High or Middle Groups.

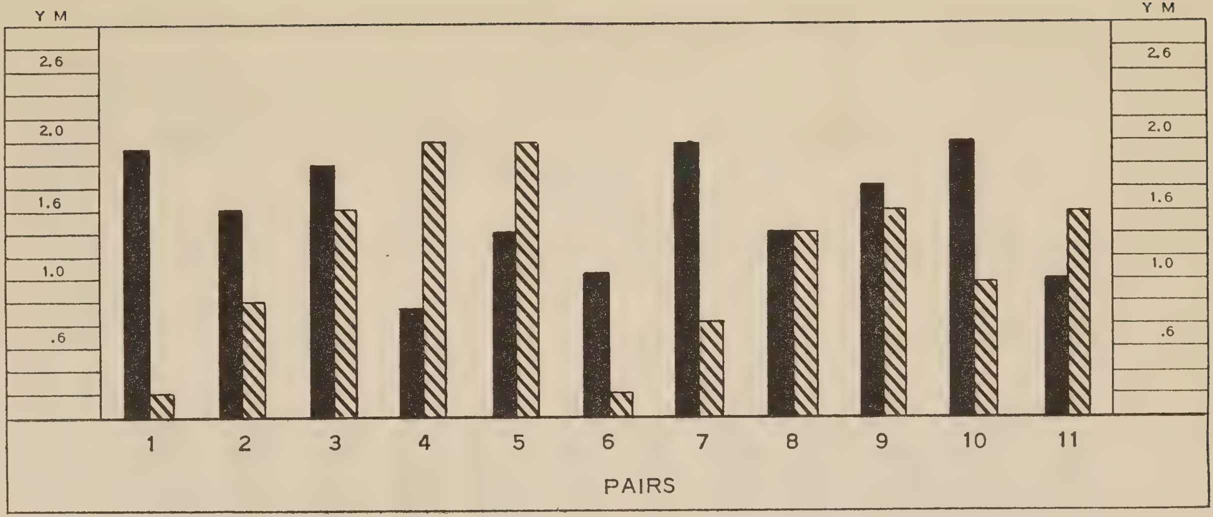

Figure 1

READING GROWTH ACHIEVED BY CHILDREN PAIRED IN THE HIGH GROUPS*

KEY:

Solid Bars ■ Experimental Group Member

Strip Bars ▨ Control Group Member

Each horizontal line on the vertical axis represents two months.

* Growth is the difference between beginning and ending scores on the Metropolitan Achievement Test.

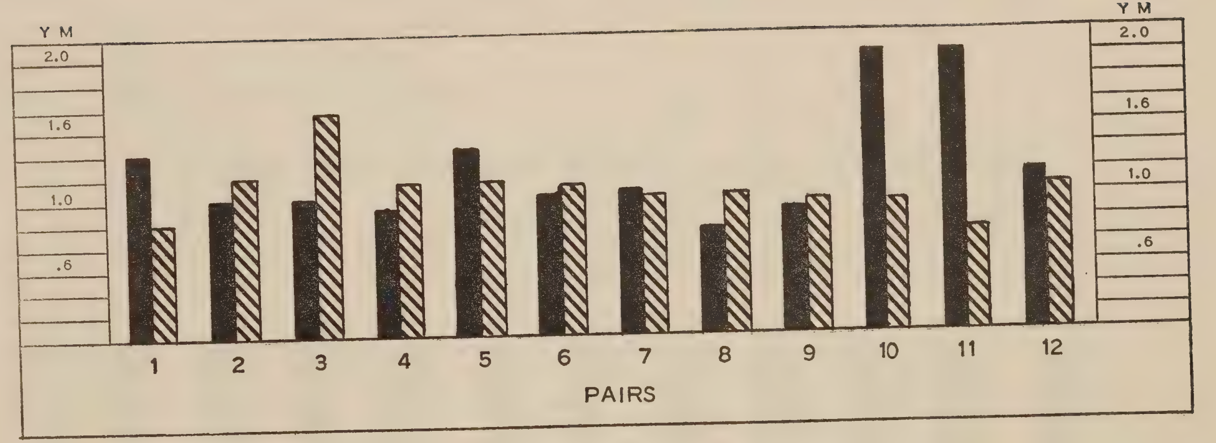

Figure 2

READING GROWTH ACHIEVED BY CHILDREN PAIRED IN THE MIDDLE GROUPS*

KEY:

Solid bars ■ Experimental Group Member

Strip bars ▨ Control Group Member

Each horizontal line on the vertical axis represents two months.

* Growth is the difference between beginning and ending scores on the Metropolitan Achievement Test.

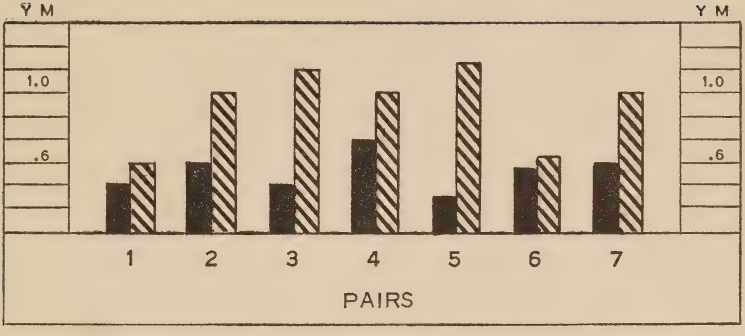

Figure 3

READING GROWTH ACHIEVED BY CHILDREN PAIRED IN THE LOW GROUPS*

KEY:

Solid bars ■ Experimental Group Member

Strip bars ▨ Control Group Member

Each horizontal line on the vertical axis represents two months.

* Growth is the difference between beginning and ending scores on the Metropolitan Achievement Test.

QUESTIONS

1. List the variables in this case that were controlled as well as possible in a classroom setting. What essential variables were partially controlled, or not controlled at all?
2. Analyze the graphic representation of data in this case. Are these Tables and Figures well organized and clear? Do they portray relationships?
3. In the event that such a plan for grouping in reading should expand to other schools or grades, another type of experiment might be in order. Plan and outline a rotation group experiment to test the same hypothesis which was tested in this case.

APPENDICES

RESEARCH AND THE ADMINISTRATOR

Appendix A

THIS Appendix has been prepared chiefly for the public school administrator and his staff in the belief that the local educational program will be as good or as bad as these persons cause it to be.

It was planned to serve several purposes. *First,* to illustrate that the effective school administrator is a researcher, a problem solver at the local level. *Second,* to cite three basic values of educational research for schools. *Third,* to discuss several preliminary things which the administrator and his school staff should consider before beginning a research project. *Fourth,* to present six types of research assistance which schools occasionally need. *Then,* to discuss some safeguards for school systems interested in educational research; and, *last* to suggest that educational research is a local responsibility in every school district.

The Effective Administrator Recognizes Educational Problems

For many years educational research has followed the procedures developed in the physical sciences. As a result, much educational research seeks to mimic the experimental control situations in the physical sciences, and too much research has tended to be far removed from the daily activities of classroom teacher, special personnel, and school administration. Educational research must begin and end in school practice and a partnership must be built between local school personnel and persons skilled in educational research so that local problem solving can promote school improvement.

The problems associated with public schools today seem more evident and more numerous than ever before, but this jungle of complex problems is in no way unique to education. Problems in the operation of a business, a farm, even in the maintenance of one's personal property are much more complex and more numerous now than in years past. Public education today is not in "trouble." There are certainly more things right with our schools than wrong with our schools. It is no disgrace to have educational problems. An educational problem is a potential growing point; not to perceive problems is to stagnate.

Research, as a continuous function of the local school administration and staff, can do much to enliven the school program, to solve persistent educational problems at the local level, and to give the entire school environment an aura of objectivity. There is much to indicate that when research is done at the local level it is done because of an alert administrator and as a result of his belief that the scientific gathering of facts and subsequent decision-making is the proper way to approach school problems. In many cases, the administrator goes beyond the time and talent of his full-time staff in order to carry on research on a particular school problem.

In 1957 the N. E. A. Yearbook of the American Association of Supervision and Curriculum Development reported that there were seven criteria for successful research at the local level:

1. A feeling should exist among potential researchers that it is all right to have problems.
2. Research should be designed so that it will satisfy people's needs.
3. Research should start gently, perhaps on a modified voluntary plan.
4. School officials should help people find security in groups and help them to work together successfully as group members.
5. They should provide enough "safety valves" so that steam can be "blown off" when things do not go well.

6. Those in leadership should allow for the lone researcher as well as the researcher who wishes to work with others.
7. They should involve in research projects those teachers, parents, and others who are high in the power structure of school and community.

The administrator who fails to recognize problems in education is like the adolescent who evades daily decisions while realizing that he can't escape eventualities. The school administrator, however, is not generally favored with the excuse of youth. He can't make many mistakes. Everywhere he turns in his profession he sees problems which whisper or shout for solutions. In curriculum, in testing and evaluation, in guidance, in the vital area of budgeting and finance, in school-community relations, in the improvement of instruction, in giving consideration to exceptional children, and even in the conducting of comprehensive school surveys, he sees the need for a continuous research attitude. As Corey writes: [1]

> Our schools cannot keep up with the life they are supposed to sustain and improve unless teachers, pupils, supervisors, administrators, and school patrons continuously examine what they are doing. Singly and in groups, they must use their imaginations creatively and constructively to identify the practices that give better promise, and methodically and systematically gather evidence to test their work.

Three Basic Values of Educational Research

The school administrator may tend to think of educational research in the narrow context of his own college days—the thesis, the term paper, the group project. Such a conception of educational research restricts its use in local school situations. Actually, there are three basic values which local school systems may derive from doing research in school problems.

Fact-finding is the value which is most obvious. Many school problems brightly mirror solutions once the facts are accumulated. Enlightened school districts in larger communities generally have a department staffed to accumulate facts about the school's operation, from its financial operation to its enrollment in various grades and subjects. Fact-finding, as simple as it may sound, in the basis of educational research. Whether the local problem be the addition of new classrooms, the adding of special personnel, an inventory of high-school dropouts, or a follow-up of vocational achievement of high-school graduates, searching for facts and presenting these facts in an orderly way is an important prelude to more complex educational research.

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[1] Stephen M. Corey, *Action Research to Improve School Practices.* New York: Columbia University Press, 1953, p. 8.

A second value to be found in putting research to work at the local level is the solution of problems. In problem solving, one steadily improves the operation of the school; where problem solving does not exist, one lives in a high blood pressure environment of growing tension and must nervously await the bursting of an educational artery. The methods of research which were useful in the writing of a thesis may be put to excellent, practical use at the local level. Problem solving is more complex than fact-finding, but it is also the administrator's chief weapon against habit and traditional ways of operating in education.

A third value of educational research is that it enhances the professional development of teachers and administrators. No person in education ever really completes his training. There is an ever-present need for inservice opportunities for all school personnel. In fact, many teacher education specialists declare that professional development begins its full stride when teaching begins. All else is pre-professional development and vicarious experience. The wise administrator knows that teachers can grow lifeless on the vine, that even the administrator can become an office manager whose daily chores leave him no time for educational leadership. In the planning and continuation of educational research, numerous opportunities for professional growth are presented for all school personnel, horizons are widened, attitudes are expanded, and learning becomes the natural partner of teaching.

Some Considerations Before Beginning a Research Project

While educational research can be a valuable instrument for school improvement, school leaders should never launch hastily into a research endeavor. Let us ask some preliminary questions. (1) Does the school problem which you have in mind definitely limit the operation of your school or decrease the value of your educational program? (2) Can your educational program be improved by concerted study, reflection and research on this problem? (3) Are the various school publics—students, teachers, school board members, parents, the general public—aware of this educational problem? (4) Have teachers and parents discussed the problem under consideration and failed to solve it? (5) Has the school board discussed this problem at a regular board meeting? (6) Is this educational problem one that seems perennially to cause concern? (7) Have you carefully identified, described, and analyzed the problem? (8) Do you see its parts, its ramifications, its possible causes? (9) Can you list on paper the effect which this school problem has on the educational program?

Research should never be thought of as a kind of sympathetic salve which one applies to various surface irritations in the school. Nor is research like a miracle drug which dissolves pain and disease. Some schools undertake research for the wrong reasons. *First,* the band wagon rolls by and the school is tired of standing still or walking. "Making a study" is viewed as a popular means of locomotion. *Second,* to many people the research idea is born out of a pious resolve "to do something good" for the old school. *Third,* research is regarded by some as some kind of a charm which will magically rid the school of its disturbances—both chronic and acute. The research idea should be naturally born out of a real, local problem which needs a solution, and research should be begun with the realization that until the school program is improved, the research will not be concluded.

Types of Research Assistance Needed

Most certainly the effective administrator will not have the necessary time to devote to broad research, except at the leadership, research-promotion level. In some cases his training will be such that he needs professional advice and consultantship when handling intricate school problems. Just as the physician uses the skills of many related persons in order to practice medicine effectively, so the school administrator needs to employ many skilled persons to increase his own effectiveness.

There are five basic types of research assistance which can be valuable to the local school system: (1) General consultantship. This type of research assistance is often used in the initial contact with the school administrator at the moment that he needs to discuss, with an objective outsider, a specific school problem. The general consultant should, therefore, be a person who can advise as to the use of certain research procedures and methods and who possesses a personal acquaintance with skilled, specialized educators in many areas who could assist the local school. The general consultant often serves as a coordinator, planner, or director of such studies. (2) Specialized consultantship on single problems. Many times the school administrator with a particular problem in mind can receive invaluable research advice from the use of specialized personnel. The specialist in a particular field brings to the administrator the benefit of many years of extensive study and experience in a specific field of concentration. Such skills cannot be expected of the chief school administrator and, in many cases, are not found in his regular school personnel; nevertheless they are often needed to help improve various aspects of the school program. (3) Periodical observation and analysis. The school can benefit greatly by systematic observation and analyzation done by a resource person whose training and experience qualifies him in a particular area of the school program. (4) Comprehensive school surveys. In many localities, the school experiences rapid growth and expansion because of population increases, school reorganization, and other outside forces. In such communities comprehensive school surveys need to be conducted, and research assistance from teams of educational specialists and general researchers can help the school make quick adjustments to changing times. (5) Organized, local study groups under professional direction. Due to the local control concept in American public education, the local community is responsible for its public school. Professional assistance in the organization of such local study groups can serve the school well. Much of the leadership, after the initial organization of such a community-school study, can be carried on by local citizens.

Safeguards for Schools Interested in Educational Research

When the school seriously considers the role of educational research in the improvement of its program, it needs to think seriously about the use of professional research agencies or bureaus. The following considerations should be made. (1) Carefully select the research bureau or agency which is best qualified to deal with your specific educational problem. Some school districts have been unfortunate in the selection of professional research personnel. A researcher who enters your community and school can make a vitally constructive impact on things, or he can breed insecurity and antagonism wherever he travels. As in most professions integrity abounds, but some personnel are more highly trained or more sensitive to the school environment than others. (2) Consult at length with the director of the research bureau or other agency before making verbal or written commitments about securing its services. Generally, the legitimate research person will be most happy to consult leisurely with you at your home-base and will not have the salesman attitude. (3) At a regular meeting of the school board, invite the research consultant to discuss the contemplated research. Prepare a written agenda. Do not place the researcher in a position of having to justify the need for a research study. Orient school board members toward an objective, optimistic session of inquiry, not a push and pull session. Leave plenty of time for every member present to raise questions and to share his ideas with the group. (4) In cooperation with the consultant, draw up a complete study outline or plan, stating the educational problem clearly and indicating the types of educational improvement that should result. Several local persons should participate in the development of this plan. In a good many cases it is wise to have the president of the school board appoint a board member to work in this phase of the research operation. Certainly key teachers should be involved, and, depending upon local situations and the nature of the research to be done, certain lay leaders in the community should be invited to help develop the outline and plan. The research consultant, in meeting several times with such local groups, can benefit greatly by his understanding of the people, the school needs, and the methods of working in a specific research framework. (5) After preliminary meetings, you will be able to sense where interests and abilities lie within your local community. From the group who developed the study plan, it is wise to form a local research advisory committee to be responsible at the local level for assisting the research consultant and his resource personnel. This local committee should have several meetings with the research consultant. Probably, the chief administrator of the school district or his appointee should be the chairman of this advisory committee. (6) Conditioning the community to the nature of this research project is of utmost importance. While occasionally we question the personal concern of some of our local citizens for their schools, we should never neglect to keep all persons informed about projects which will affect the school program. At about this time in your research planning, much discussion of the research project should take place in the local community. Certain key persons who have served on the advisory committee can serve as discussion leaders to tell local citizens about the research program. P. T. A.'s, service clubs, church groups, taxpayer's organizations, virtually all organized groups in the school district should be aware of the fact that the school is attempting to improve its school program through research. It has become increasingly obvious to the laymen that research brings progress. The businessman readily sees the value of it, and even the consumer of everyday products is aware of the advances made in his personal standard of living by applied research. The fact that the school is conducting research into its problems will, no doubt, cause some weary heads to be raised in pride. (7) Be prepared to assist the consultant in obtaining local data and opinions. Instruct your entire staff to place at the researcher's disposal any records or facts that may be relevant to the problem under study. This will enable the researcher to get the basic facts and, therefore, will prove economically wise as well as minimize rumor and opinion about certain facts. The research consultant will often desire to go directly to the person who is in charge of certain school departments. However, the professional researcher will keep the school administrator completely informed on such matters and will schedule through the school administrator appointments with school personnel which seem necessary. (8) Plan for the involvement of a number of your key faculty in the research process. Their latent dynamics will be activated by assisting in the research program. Critical self-analysis under the guidance of an outside consultant can create new enthusiasm and perceptions within your staff. In the final analysis, the school's full-time staff are the persons who will most improve the school program. Engaging faculty members actively in the research process will motivate them to make adaptations and improvements in their areas of responsibility in the school. They should share in the data gathering and should submit their ideas freely to the consultant. (9) Periodic dates for reporting the progress of the research study should be agreed upon if such seems necessary. In most cases, it is wise to involve the entire school personnel at periodic times in a discussion of the current status of the research study. The school, more than any other public institution, is a team of individuals which must function as an integral whole. Awareness and understanding of the nature of the research study enables the school to operate smoothly as a unit. (10) The final written report of the research project should be done by the consultant and his research team, unless at the outset a different plan has been agreed upon. The researcher's objectivity and vantage point give him an opportunity for incorporating into the report things which will be highly valuable to consider, although some of his recommendations and evaluative remarks may be of a long-range nature. (11) The written report should be presented to the school board for its acceptance prior to releasing any data to the general public or mass media agencies. After the acceptance of the final report, the school board or their chief administrator should release the report to the general public in a manner decided upon locally. The complete report may be divided into sections and released in a series to the entire community, or the local advisory committee and school board may prefer to have the entire research report duplicated and distributed broadly throughout the school district. (12) A firm statement of the total cost of the research project and the dates on which this fee or parts of it will be paid should be in the written contract. In large projects, such as a comprehensive school survey, it may be wise to pay one-half of the total cost midway in the research process and the remainder at the presentation of the final written report. Financial outlay for research in the local school district is not only a legal and honorable expenditure, it is a distinct investment in the school's future. (13) The completion date for the presentation of the written report should be included in the contract. (14) Include an agreement in the contract which provides that the bureau or research agency furnish a specified number of copies of the research report to the school board. Never be frugal in terms of the number of copies of the reports needed. Since the school is a locally controlled institution, its public must be completely aware of the present school program and its future plans. Research reports can be excellent instruments in the improvement of school-community understanding and support. (15) The research agency should assist school officials in developing a structure for public discussion of the facts and recommendations in the written report. We have learned long ago that research documents confined to being released to accrediting agencies or to put in glass cases as if they were trophies do not generally improve the school program. The implementation of research findings is the key which unlocks the door to school improvement. Actually, when the written report is presented to the board, the school improvement program begins. (16) Retain the right of the school board to reproduce any part of the research report for local use in discussion groups, P. T. A.'s, publicity campaigns, et cetera. (17) The research report should be copyrighted by its authors to prevent indiscriminate use or out-of-context reproduction by anyone whose motives or insights might be questionable.

Educational Research Is a Local Responsibility

Many things contribute to the quality of a local school program. Effective teachers, responsible citizens, dynamic administrators, adequate economic foundations, careful planning at the state level —all are necessary in order to present to youngsters the educational program they deserve in modern times. As one thinks seriously about conditions which affect the school program, he is reminded that the school is a product of local influences. Its local vision in most instances is the ceiling under which it must work. Educational research is also a local responsibility. Where problems are evident, where limiting factors shrink the success of the school, it is a local obligation to remove them.

The administrative leader of the school district is directly responsible for the use of research in the improvement of the school program. His judgment is one scale on which the school program can be measured. In most American communities the school administrator can call upon nearby professional resources to assist in school research. Many public institutions of higher learning and private educational research agencies are available at his demand. The modern administrator is the builder who uses many tools and many workmen to fashion an educational product. If he chooses to use only hammer and saw and his two good hands, his product will reflect this fact. If he employs the finest instruments and tools and the ablest craftsmen, again this will be evident in the nature of the school. Without fine instruments and many skilled craftsmen, the school building will not be a functional plant, the plumbing may leak, the curriculum may creak, learning may be limited. The self-sufficient schoolman disappeared with the traveling, itinerate teacher and the log-built, one-room school. Today the talents of many persons are demanded to develop the school program.

RESEARCH AND THE EDUCATIONAL CONSULTANT

Appendix B

THE purposes of this Appendix are: *First,* to point up the value of the educational consultant in assisting local school districts in the study of school problems. *Second,* to discuss some characteristics of qualified educational consultants. And *last,* to list some "do's" and "don'ts" in the use of consultants in research and school development.

The Value of a Research Consultant

Today there are valuable consultants in literally hundreds of fields of work—there are educational consultants, sales consultants, community consultants, tax consultants, architectural consultants, even presidential consultants. The list continues to grow as our world becomes more complex and as specialized areas of knowledge narrow. Likewise, the list of institutions, agencies, and businesses which have need for the visiting consultant is a long one. The nature of modern living has created a profession of consultantship. The consultant in education is that person who possesses specialized training and ability which cannot be regularly afforded in the school faculty or which may not be needed on a full-time basis in the typical school. He is a specialist who possesses wisdom, facts, theory, and know-how which can augment and stimulate the full-time staff in the local school system.

First, the consultant has a valuable vantage point from which to operate. He can see both the trees and the forest. Personal involvement, subjective desires, known limitations, often restrict a person's ability to look at an educational problem from a point above the level of day-to-day work. *Second,* the consultant can maintain an objective and unemotional involvement in the educational problem. While he will no doubt be sensitive to underlying conditions and motivations in the school, at the same time he does not permit such things to restrict his critical thinking about the problem or its solutions. *Third,* the consultant carries with him to the local school a certain aura of authoritativeness, which someone properly called "the authority of the authority." It is an inescapable fact that the external research consultant, due to the way he is accepted in the local situation, can often make a greater impact than if he were regularly and intensively involved in the group situation. As the Bible puts it, the prophet is without honor in his own country. *Fourth,* another natural value of the consultant is found in his specialized education and experience. Today each man is barely able to keep up with the churning changes that occur in his special field. The consultant has generally cut out for himself a particular area of emphasis in which he has become a legitimate authority. *Fifth,* the consultant has the opportunity and the ability to concentrate on a single educational problem within the school system. Many of the skilled local persons do not have this advantage. They are buffeted about by many problems. The consultant can give his undivided attention to a particular school problem over the necessary span of time. *Sixth,* the consultant is able to present fresh ideas and insights. He brings to the local scene viewpoints gathered from working in a broader context than a single school. *Last,* the educational consultant possesses research skills and tools. He has experimented with these tools and knows how they can be used to best perform practical research.

The Characteristics of a Qualified Educational Consultant

In the modern school system, as in business and industry, the consultant is increasingly valuable. His contributions are varied—

occasionally his functions are research and analysis or, at times, he is called upon to diagnose trouble and prescribe for improvement, or he may be employed for his ability to tap and develop existing personnel resources and thus utilize otherwise wasted talent and leadership. The complexity of public education demands a greater range of personnel skills and knowledge than most schools can employ on a permanent basis. Therefore, the school turns to the educational consultant. The term "educational consultant" is a rather new one. It did not appear in Good's *Dictionary of Education* until the late 1940's, and it was not a topic in the *Education Index* until January, 1948.

The American Management Association prints a *Directory of Consultant Members* which seeks to maintain high standards among business and personnel consultants, but American education has no complete directory of approved consultants. Consultantship may be offered by private individuals, by corporations, by public agencies, or by university bureaus. Phi Delta Kappa, however, publishes *A Directory of Educational Research Agencies* [1] each year, which is a very useful guide to professional consultants.

The rise of the consultant in education has been accompanied unfortunately by a hitchhiker without portfolio—the pseudo-expert or the "would-be" expert. Basically, there are six types of pseudo-experts.

First, there is the "crisis-causer." From your very first personal or written contact, this man will play upon the urgency and magnitude of your particular problem. If you give him no particular clue to the problem, he will lustily inflate a related problem until it swells to such proportions that you wonder how you were able to live with it. This kind of person operates best on the edge of panic. When your house is on fire, or you think it is, you don't reason very clearly. This man can start an educational fire in the rain with wet rags and burnt matches.

Second, the "verbalizer." He can talk around any problem in education. His standby problem-solving approach is to give a "hard-hitting speech" about the matter. His listening level is critically low. He thinks with his tongue. This man loves a crowd; he knows he can be quickly cornered in a quiet office with a school board member or any other intelligent person, but he can easily manipulate a group, large or small.

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[1] Raymond J. Young, *A Directory of Educational Research Agencies and Studies.* Bloomington, Indiana: Phi Delta Kappa, 1959, 91 pp. (Cost: $1.00.)

Third, there is the "general specialist." He just happens to be trained in whatever he thinks you need him to be trained in. He thrives because many honest employers do not have the time or insight or energy to get behind false fronts, fancy titles, or plush business cards and weigh human worth. The general specialist is a product of our own carelessness. His kind would vanish if employers were vigilant.

Fourth, the "successful man" variety. This fellow is not malicious, and he generally does not misrepresent himself nor his abilities. He is successful, but somehow he is not able to transfer his knowledge and adapt his ideas to fresh problems like yours. This man lacks the ability to perceive problems, causes, solutions until he works with them daily over a long period of time. Under typical consultant handicaps, such as limited time to study and assess a problem, he simply cannot perform.

Fifth, the "egg-shell" variety. This man's greatest personal asset is his vast self-confidence in the face of a single but unsurmountable handicap—ignorance. His training and experience are thin. Because of this, he is often a "word dropper" who has rigidly disciplined himself to use words, terms, and phrases that signify a general comradeship with educational issues and problems. He gains entrance into many talented circles merely by word dropping.

Last, the "extroverted go-getter." Here is the man who believes that "all you have to do is get people busy." His brother is the man who believes that a group discussion is productive if everyone flexes his throat muscles and pounds his fist on the conference table. Much activity may take place as this person works in a school system, but much of the activity will be fruitless; fact-finding, planning, logical thinking will be absent.

The signs of the truly professional consultant can be placed in question form. (1) Is he connected with an educational research agency or bureau? (2) Does he have additional personnel to call upon or is he a "one man" army? (3) Has he had successful experience in dealing with your particular level of education and with problems that seem to resemble yours? (4) Is his main office located so that he can maintain close, personal contact with your school, its staff, and with various committees that may participate in the study? (5) Is he willing to spend a sufficient amount of time in getting to understand your general problem and in arriving at an extensive research outline or plan, prior to talking about costs of research assistance? (6) Do you know anyone who knows him, either directly or indirectly? (7) Does he respond forthrightly to your questions, not hedging or generalizing? (8) Does he seem more genuinely concerned about the educational problem than the financial aspect of the research? (9) Is he willing to have you take your time in deciding upon the employment of his services or those of his staff? (10) Can you obtain copies of recent educational research studies directed by the person or his institution? (11) Is he concerned about conducting the study *and* helping to implement its recommendations? *Last,* does he seem to combine several essential personal ingredients—a sensitivity to school situations, a practical bent, and an ability to be analytical and theoretical?

Some "Do's" and "Don'ts" in the Use of Educational Consultants

There are some real dangers or "do nots" in the use of educational consultants. *First,* do not attach divinity to him. When the consultant is garbed in shining raiment and handed a wand, his usefulness is weakened. Research shows that the consultant who is quickly identified as a man who has faced the real problems, analyzed and solved them, is more inspirational and more apt to motivate others than the "miracle-worker."

Second, don't boil water for him. That is, don't try to disinfect and purify everything that he comes in contact with in your school system and community. The patient who hides or confuses his symptoms does no favor to the physician nor to himself. The visiting educational consultant is too often brought to the school blindfolded. The administrator conveniently omits to show him anything that might reflect on the system—poor working conditions that adversely affect morale, offices or departments which serve nebulous functions, overcrowded classrooms, heating and plumbing units which are ancient, visits to classrooms where the intellectual atmosphere is dry and light, et cetera. But just such things may be the key which a consultant needs in order to be of assistance to your school in the improvement of its educational program.

Third, do not expect or accept pat answers or canned advice. The consultant, without intensive orientation, questioning, and observation, who can hand out printed panaceas is more suitable to fortune telling and other forms of prediction. Hold in abeyance any discussion of solutions until the facts are aired and complex relationships are explored. Don't push for the answer before the facts are in. You may get it!

Last of the "do nots," don't expect a consultant to diagnose, treat, improve, or cure any school problem in a single visit. His job requires extensive contact with the local situation and his value to the school system is in direct ratio to the time, energy, and insight which he is able to devote to the problem.

Enough of the "do nots." What are some practical suggestions which the school administrator and his staff should heed in working with the educational consultant?

1. Spend considerable time orienting the consultant to the general situation in which he will function. If possible, do this several weeks prior to the time that he will serve as a consultant in your district. Remember that a rubber tongue is no substitute for an elastic mind. Your consultant will need time to exercise thought about the problem and his approach to it. He will need to plan for the use of certain research methods; he will need to familiarize himself with your school personnel and program. Place in his hands any printed material about the school, any fact sheets which will give him a clearer picture of the program for which you are responsible. Such an orientation is invaluable.

2. At the outset make quite clear his leadership role. Exactly what is he supposed to do? Is he to assess informally the problem, give advice to your staff, speak to the entire faculty, talk with a small committee of laymen and faculty, hold informal discussions with key workers, plan for the implementation of the research findings, prepare a formal written research report? All of these respon-

sibilities are important and cannot be accomplished to greatest satisfaction unless the consultant realizes what is expected of him. The ready man has the advantage.

3. Plan for the involvement of key local persons in the research study so that the consultant can work with participants, not just passengers. The consultant's value is greatly increased as he involves full-time staff, students, lay adults, and the school board in discussion, evaluation, and planning. Don't let such involvement be an after-thought. By planning and conditioning, you can prepare your key workers for their vital role in partnership with the consultant. Trust will replace fear; cooperation will transplant caution.

4. Brief your faculty on the consultant's background, training, and experience. They will be able to derive many more personal benefits from him if they know him better. A fact sheet about him should be distributed to everyone who is involved in any way in the research program.

5. Gather in advance the kinds of materials, records, and facts which you know he will need. Time can be saved this way and used for more important staff sessions and personal conferences with the consultant. He may request additional information as the study gets into full swing. Try to see that whatever information he desires is obtained from its direct source and that it is in his possession at the earliest possible time.

6. At appropriate times during his stay, be sure to pause with the consultant and assess progress which has been made. Without time-pressure, plan future directions with him and summarize what has taken place to that date. These assessment periods can best be accomplished over dinner or refreshment or in some informal school atmosphere rather than in the formal office conference setting.

7. When introducing the consultant or addressing audiences in which he is present, speak of "our job," "our needs," "our research program." The consultant can function best when he is identified with the group. He should not be a man on a raft.

8. Plan in advance for sessions with the consultant and local workers in the research project as soon as the written report is completed and has been studied by the local community. The pur-

pose of these sessions will be three-fold: to evaluate the research project, to clarify questions about it and to chart possible follow-up steps. Regaining momentum is costly. Whatever enthusiasm and interest the research study has developed should be sustained and heightened until major recommendations are put into practice. In many situations, the consultant does not solve the educational problem. He leaves clues, helps, ideas. He routes resources for you. He recommends things to be considered. Local team members and citizens throughout the community must be willing to exercise their own initiative in the final step of research, which is school improvement.

9. Be sure to secure from the consultant additional leadership references, names, addresses, and titles of other people who might prove helpful to the school district in the future. Due to the nature of his job, his acquaintances will include many people who could be valuable resources to you. A reservoir of such resources can be a distinct asset to the school.

10. Keep in touch with the consultant after his departure. His value to you and the entire school program will be enhanced. Think of him as a continuing resource, not as a lightning healer of miscellaneous ills.

The educational consultant is an increasingly necessary resource in the development of a potent educational program. His value depends upon the wisdom exhibited in his selection and upon the manner in which he has been employed.

Effective consultantship, like teaching, custodial work, and school building repairs, is not free. You get what you pay for. But in many cases, the professional educational consultant will save your school district far more than his fee. Invariably, he will be able to help you alter school programs so that your dollar investment in research consultantship becomes a worthwhile educational investment.

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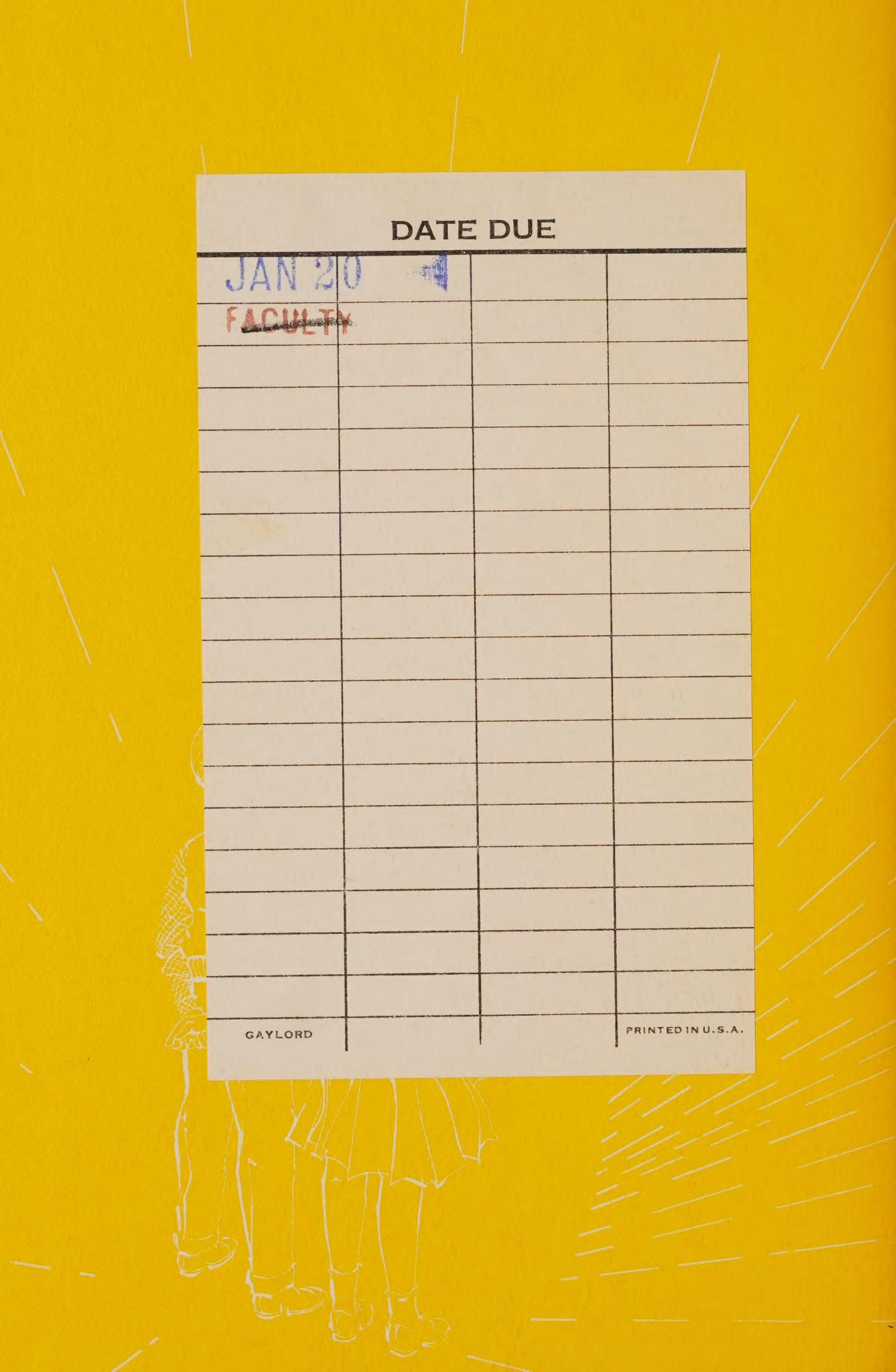

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